THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 6356

No. XI. OF VOL. II., 1915.
No. 4802. Vol. CLXXXIX. LONDON, SATURDAY, SEPTEMBER 11, 1915. Price 6d.

SQUIRE'S STANDARD WORKS OF REFERENCE FOR STUDENTS.

Price 10s. 6d. net; post free (inland) 10s. 9d.

SQUIRE'S POCKET COMPANION

to the new BRITISH PHARMACOPŒIA, 1914.

See Page 31.

NOW READY.

NEW EDITION OF

A CELEBRATED BOOK

Many surgeons, civil and military, wherever English is read, have been waiting for the Sixth Edition, by R. P. Rowlands and Philip Turner, Surgeons, Guy's Hospital, of that preeminent book, The Operations of Surgery (Jacobson). It has been published this week and will receive a great welcome. It comes as a relief to the operator, in his many anxious moments, to have a guide of proved value and also fully up to date. Laborious work has been put into the new edition, both in the text and the illustrations.

40 Illustrations in Colour.
797 Illustrations, 420 new for this Edition.
Two handsome Royal 8vo Volumes. £2 10s. net.

THE OPERATIONS OF SURGERY (JACOBSON).
Revised Edition by R. P. ROWLANDS and PHILIP TURNER, Surgeons, Guy's Hospital.

THE LANCET.—"*This incomparable treatise ..... in comprehensiveness and thoroughness it is unapproachable.*"

London: J. & A. Churchill, 7, Great Marlborough-street.

By J. S. KELLETT SMITH, F.R.C.S. Eng.

LATERAL SPINAL CURVATURE AND FLAT FOOT, AND THEIR TREATMENT BY EXERCISES.

"An excellent and most useful manual."—NEW YORK MED. RECORD.

Contains a detailed and fully illustrated account of the "creeping" exercises. 82 Illustrations. 5s. 6d. net. Wright, Bristol.

BONESETTING and the TREATMENT of PAINFUL JOINTS.

By FRANK ROMER, M.R.C.S., L.R.C.P., and L. ELIOT CREASY, M.R.C.S., L.R.C.P.

Crown 8vo, 1s. net.

"Messrs. Romer & Creasy strip this branch of practice of the cloud of mystery and miracle which has been thrown around it by interested people and well-meaning, but ignorant supporters. They effectually disprove the foolish charge that the medical profession has wilfully ignored the subject, and they have dealt with it in an unprejudiced spirit. Moreover, they bear witness to the fact that the profession keeps an open mind as to everything connected with the treatment of disease and the relief of pain and physical disability, and is willing to learn from any source anything that may seem likely to be useful for these purposes."—BRITISH MEDICAL JOURNAL.

James Nisbet & Co., Limited, 22, Berners-street, W.

Reprint Edition. 1028 pages, richly illustrated. 30s. net.

INDEX of DIFFERENTIAL DIAGNOSIS of MAIN SYMPTOMS.

Edited by HERBERT FRENCH, M.A., M.D.

TOGETHER WITH TWENTY-ONE SPECIAL CONTRIBUTORS.

"May be said to represent the last word as to limits of diagnostic power at the present time ..... illustrations are of a uniformly high merit, and aid materially ..... of Dr. French's work, both as editor and contributor, we cannot speak too highly. ..... This remarkable index."—BRIT. MED. JOUR.

Bristol: J. Wright & Sons Ltd. London: Simpkin & Co. Ltd.

8vo, 12s. 6d. net. Stereoscope, 2s. 6d. net.

RHINOLOGY: A TEXT-BOOK OF THE DISEASES OF THE NOSE AND ACCESSORY SINUSES.

47 Plates and 146 Illustrations.

By P. WATSON-WILLIAMS, M.D. Lond., Lecturer on Diseases of Ear, Nose and Throat, University of Bristol, and in Charge of Ear, Nose and Throat Department, Bristol Royal Infirmary.

Longmans, Green & Co., 39, Paternoster-row, London, E.C.

ON DISEASES of the LUNGS and PLEURÆ, including TUBERCULOSIS and MEDIASTINAL GROWTHS.

By Sir RICHARD DOUGLAS POWELL, Bart., K.C.V.O., M.D.Lond., F.R.C.P., and P. HORTON-SMITH HARTLEY, C.V.O., M.D.Camb., F.R.C.P. Fifth Edition.

With 29 Plates (six coloured) from Original Drawings, and 53 Illustrations in the text. Demy 8vo. 21s. net; inland postage 6d., abroad, 1s. 4d.

"We can safely say that no affection of the lungs has escaped the notice of the writers."—THE LANCET.

London: H. K. Lewis & Co. Ltd., 136, Gower-street, W.C.

SAUNDERS'

IMPORTANT NEW BOOKS AND NEW EDITIONS

See Saunders' Advertisement on Page 3.

NEW EDITION. In 2 vols. 45s. net.

DEFORMITIES, including DISEASES of the BONES and JOINTS. A Text-book of Orthopædic Surgery. Illustrated by 70 Plates and over 1000 Figures, and by Notes of Cases. By A. H. TUBBY, M.S. Lond., F.R.C.S. Eng.

Second Edition: "The standard text-book in English on the subject.' —THE LANCET.

First Edition: "Standard work on the subject in the English language."—BRITISH MEDICAL JOURNAL.

Macmillan & Co., Ltd., St. Martin-street, London, W.C.

BY C. MANSELL MOULLIN, M.D.Oxon., F.R.C.S., Consulting Surgeon to the London Hospital. Fourth Edition.

ENLARGEMENT of the PROSTATE. Price 6s.

London: H. K. Lewis & Co., Ltd., 136, Gower-street.

WHEN to OPERATE in INFLAMMATION of the APPENDIX. Third Edition now ready. Price 2s. 6d.

London: J. Bale & Danielsson, Ltd., 83-89, Gt. Titchfield-street.

NEARLY READY. With 150 Illustrations.

By CHARLES J. HEATH, F.R.C.S. Eng., Late Surgeon to the Hospital for Diseases of the Throat, Golden-square, London.

AURAL SUPPURATION: ITS ARREST, WITH PRESERVATION OF THE HEARING.

The indications for performance of the Author's conservative mastoid operation.

London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

J. W. THOMSON WALKER, M.B., C.M.Edin., F.R.C.S. Eng.

SURGICAL DISEASES AND INJURIES OF THE GENITO-URINARY ORGANS.

880 pages, 24 Colour and 21 Black-and-White Plates and 279 Illustrations in the Text. Price 25s. net.

"Will hold its place for many years as the best English text-book on the subject."—BRITISH JOURNAL OF SURGERY.

Cassell & Co., La Belle Sauvage, London, E.C.

By FREDERICK J. McCANN, M.D.Edin., F.R.C.S. Eng., Surgeon, Samaritan Free Hospital for Women, London, N.W.

CANCER OF THE WOMB: ITS SYMPTOMS, DIAGNOSIS, PROGNOSIS, AND TREATMENT. Fully illustrated. 20s. net.

LIVERPOOL MEDICO-CHIRURGICAL JOURNAL.—"Cancer of the Womb, by F. J. McCann, is a book that can be recommended alike to the general practitioner and the specialist. Written in a fluent manner, it embodies the ripe experience of a renowned operator, trained observer, and patient investigator."

EDINBURGH MEDICAL JOURNAL.—"The book is one of very great merit; it will be read with interest both by the specialist and general practitioner as an authoritative exposition of the important subject with which it deals."

PRACTITIONER.—"Dr. McCann has produced a valuable work which deserves to be widely known."

ST. BARTHOLOMEW'S HOSPITAL JOURNAL.—"The plates are excellent. This is a book we can thoroughly recommend."

London: Henry Frowde and Hodder & Stoughton.

 THE LANCET is registered as a Newspaper. All rights reserved.

"LESLIES' ZINCOPLAST"

A MUCH IMPROVED MAKE OF ZINC OXIDE PLASTER. STRONGLY SELF-ADHESIVE; NON-IRRITATING; DOES NOT DRY UP.

May be obtained on White or Pink Tinted Cloth, 5 yd. or 10 yd. spools, in all the usual widths.

Medical Officers and Pharmacists are invited to write for Trial Sample.

LESLIES' Original Brown Holland Surgical Strapping (DOES NOT SLIP).

In General Hospital Use since 1875. Has a World-wide Reputation.

LESLIES, Ltd., 18, Eldon Street, London, E.C.

"Sauermilch"

THE PREMIER Lactic Acid or Soured Milk Preparation.

Prepared in our own Milk Laboratories under the direct control of a skilled bacteriological staff.

WELFORD & SONS (Dairy Company), Ltd.

Chief Offices and Milk Laboratories : : : ELGIN AVENUE, LONDON, W.

Principal Telephone: "Paddington 5440" (2 Lines). Telegraphic Address: "Welfords Maida, London.

Valentine's Meat-Juice

In **Diarrhoea, Dysentery** and **Cholera Infantum** where it is **Essential** to **Conserve** the **Weakened Vital Forces** without **Irritating** the **Digestive Organs, Valentine's Meat-Juice** demonstrates its **Ease** of **Assimilation** and **Power to Sustain** and **Strengthen.**

W. B. Scranton, M. D., *Medical Superintendent Korean Mission Methodist Episcopal Church, Seoul, Korea:* "A most excellent use I frequently put VALENTINE'S MEAT-JUICE to is tiding Babies through Cholera Morbus and the Wasting Diseases incident to Summer and Inanition. It acts at once, and many a crisis has been passed safely by my patients, through the agency of VALENTINE'S MEAT-JUICE. It has also been of great value in my practice in the Far East in the treatment of that form of Summer Diarrhoea known as Sprue, where it tides the patients over until they can get to a better climate."

F. E. Gordon, M. D., *Anniston, Alabama:* "My baby took VALENTINE'S MEAT-JUICE with relish and with great benefit, and to its sustaining properties I think her recovery from one of the worst cases of Entero-Colitis I ever saw was largely due."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,

D 115 **RICHMOND, VIRGINIA, U. S. A.**

THE LANCET.

No. 4802. LONDON, SATURDAY, SEPTEMBER 11, 1915. Vol. CLXXXIX.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

A PRESIDENTIAL ADDRESS on the Common Aims of Science and Humanity. Delivered before the British Association for the Advancement of Science, at Manchester, on Sept. 7th, 1915, by Professor ARTHUR SCHUSTER, D.Sc., Sc.D., LL.D., Dr. ès Sc., F.R.S. 587

ORIGINAL ARTICLES.

On the Pathology of Trench Frost-bite. By J. LORRAIN SMITH, M.D. Edin., F.R.S., Professor of Pathology, University of Edinburgh; JAMES RITCHIE, M.D. Oxon., Professor of Bacteriology, University of Edinburgh; and JAMES DAWSON, M.D. Aberd., Neurological Histologist, Laboratory of the Royal College of Physicians of Edinburgh. (From the Department of Pathology, University of Edinburgh, and the Laboratory of the Royal College of Physicians of Edinburgh.) 595

Phenolisation in the Treatment of Gas Gangrene. By Dr. LOUIS MENCIÈRE, Médecin-chef de l'Hôpital de la Compassion, Rheims 599

Plastic Operation for Closing Certain Unhealed Gunshot Wounds of the Head. By C. W. G. BRYAN, F.R.C.S. Eng., Surgical Registrar, St. Mary's Hospital, London; Temporary Captain, Royal Army Medical Corps. — (*Illustrated*) 600

The Value of Prolonged Rest in the Treatment of Heart Disease in the Young. Five Years' Results of a Cottage Home for the Treatment of Valvular Disease in Boys. By GUY D. BARTON, M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond. 602

Succus Allii in the Control of Suppuration in Wounds. By A. D. SERRELL COOKE, M.B., Ch.B. Edin., Assistant Physician to the Tuberculin Dispensary, Chelsea; Assistant Medical Officer (Temporary), Paddington Infirmary, &c.; and V. GABRIEL, F.R.C.S. Eng., M.R.C.P. Lond., Assistant Medical Officer (Temporary), Paddington Infirmary 603

The Strength of Picric Acid as an Antiseptic. By H. L. TIDY, M.D. Oxon., M.R.C.P. Lond., Temporary Captain, Royal Army Medical Corps; Pathologist to the British Red Cross Hospital, Netley 604

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

Note on Acute Infectious Jaundice. By Sir WILLIAM OSLER, Bart., M.D., F.R.S.... 605

A Case of Umbilical Hernia Containing Meckel's Diverticulum. By S. G. PAPADOPOULOS, M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., Resident Medical Officer, Miller Hospital, Greenwich-road, S.E.... 605

Note on a Rare Form of Intussusception. By IDA M. GUILLAUME, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Senior House Surgeon, Clayton Hospital, Wakefield 606

REVIEWS AND NOTICES OF BOOKS.

Surgery of the Blood-vessels. By J. Shelton Horsley, M.D., F.A.C.S. 606

A Practical Handbook of Surgical After treatment. By Alan H. Todd, B.Sc., M.S. Lond., F.R.C.S. Eng. 607

St. Bartholomew's Hospital in Peace and War. The Rede Lecture, 1915. By Norman Moore, M.D. Cantab. 607

Text-book of Anatomy and Physiology for Training Schools and Other Educational Institutions. By Elizabeth R. Bundy, M.D. Third edition 607

Collected Papers of the Mayo Clinic, Rochester, Minnesota. Edited by Mrs. M. H. Mellish. Vol. VI. 607

The Louse and its Relation to Disease (British Museum (Natural History) Economic Series, No. II.). By Bruce F. Cummings 607

LEADING ARTICLES.

SCIENCE AND HUMANITY 609

MEDICAL ATTENDANCE AT NIGHT 610

ANNOTATIONS.

The Catalogue of the Library of the Royal College of Surgeons of England 611

Cerebral Morphology in its Relation to Cerebral Localisation 611

Hernia of the Stomach Through the Diaphragm in a Child 612

Unilateral Parenchymatous Degeneration of the Liver 612

The Sudden Turning Grey of the Hair 613

SPECIAL ARTICLES.

Medicine and the Law: An Inquest at Battersea. — A Medical Man's Fees. — The Fate of the Illegitimate. — Crime and Legal Insanity 608

Post-graduate Study: London. — Provincial. — Scotland. — Ireland 614

The Services: Royal Navy Medical Service. — Royal Naval Volunteer Reserve. — Army Medical Service. — Royal Army Medical Corps. — Special Reserve of Officers. — Territorial Force 618

Ireland: Insanity in Ireland. — Belfast and Pauperism. — Tyrone Medical Association... 621

Paris: The Treatment of Gaseous Gangrene. — Extraction of Projectiles with the Aid of the Camera Obscura... 622

The Belgian Doctors' and Pharmacists' Relief Fund: The Week's Subscriptions. — The Appeal for Surgical Instruments 627

VITAL STATISTICS:

Health of English Towns..... 619

Health of Scotch Towns..... 620

Health of Irish Towns 620

CORRESPONDENCE.

Hospital Treatment *v.* Lunacy Treatment (Sir Geo. H. Savage) 623

A "New Sign" in Pulmonary Diagnosis (Dr. Clive Rivière) 623

Medical Students and Combatant Commissions (Dr. Lauriston E. Shaw)..... 624

The Late Lieutenant-Colonel Edward Lawrie (Sir Lauder Brunton, Bart.) 624

The Forms of Lower Organisms as Dependent upon Molecular Constitution and Environmental Conditions (Prof. H. Charlton Bastian)... 624

Evolutionary Etiological Factors in Disease (Dr. O. C. Gruner) 625

The Risks of X Ray Operators (Mr. Edward W. H. Shenton) 625

The Sterilisation of Albuminous Culture Media by Ether (Lieutenant W. E. Bullock, R.A.M.C., Captain T. G. M. Hine, R.A.M.C.) 625

An Amended Medical Curriculum (Dr. William Bruce) 625

War Economy and Diet (Dr. Edwin L. Ash) 626

The Work of the British and Foreign Sailors' Society (Lord Radstock) 632

THE WAR.

The Casualty List 628

The Honours List 628

Deaths among the Sons of Medical Men 628

The War Emergency Committee 628

The Prevention of Trench Frost-bite 629

The Royal Army Medical Corps: An Exhibition of Apparatus.. 629

Vacancies for Medical Officers.. 629

The Anglo-Russian Hospital 629

Switzerland and Invalid Prisoners 630

Hospital Trains: How they are Saving Soldiers' Lives 630

Emotional Shock as a Restorative 630

Administrative Auxiliaries in the Voluntary Aid Detachments 630

A French Canadian Hospital ... 630

Frost-bite in the German Army 630

A New Ambulance Train 630

The Salisbury-road Military Hospital, Plymouth 630

OBITUARY.

Thomas Glover Lyon, M.D. Cantab., M.R.C.P. Lond., late Senior Physician to the City of London Hospital for Diseases of the Chest..... 626

Ralph W. Johnstone, B.A., M.D. Dub., D.P.H., Medical Inspector of the Local Government Board 627

Frederick William Saunders, M.B. Cantab., M.R.C.S., L.R.C.P. Lond. 627

MEDICAL NEWS.

The Site of St. George's Hospital 598

Croydon Insurance Committee and Medical Cards 601

Medical Service in the Highlands 605

The Danger of Eating Shellfish 608

Royal Sanitary Institute 621

Cholera in Germany 627

Edinburgh Royal Infirmary 627

Appointments 631

Vacancies 631

Births, Marriages, and Deaths.. 631

Notes, Short Comments, and Answers to Correspondents... 632

Medical Diary 633

Meteorological Readings 633

Acknowledgment of Communications received 634

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

BAILLIERE TINDALL & COX:—
Bigg..... Indigestion 5
" ..... War Diseases (Typhus, Enteric, Dysentery, and Cholera)..... 5
Freyer .... Enlargement of the Prostate 5
" .... Surgical Diseases of the Urinary Organs 5
Heath ..... Aural Suppuration: Its Arrest, with Preservation of the Hearing .... Cover 1

BALE, SONS & DANIELSSON:—
Moullin.... When to Operate in Inflammation of the Appendix .. Cover 1

CASSELL & CO.:—
Walker .... Surgical Diseases and Injuries of Genito-Urinary Organs Cover 1

CHURCHILL, J. & A.:—
Rowlands & Turner .. The Operations of Surgery .... Cover 1
Squire's Pocket Companion to B.P. 31

PAGE

CHURCHILL—(Continued).
Thorne, Besly .... Schott Methods of the Treatment of Chronic Diseases of the Heart 7

FROWDE AND HODDER & STOUGHTON:—
McCann .. Cancer of the Womb: Its Symptoms, Diagnosis, Prognosis, & Treatment .. Cover 1
Waring .... Surgical Diseases of the Gall Bladder, Bile Ducts, & Liver. 5
" .... Manual of Operative Surgery 6

GLAISHER:—
West ..... Granular Kidney and Physiological Albuminuria 5

LEWIS & CO:—
Moullin .... Enlargement of the Prostate .... Cover 1
Powell, Sir R. D., & Hartley On Diseases of the Lungs and Pleurae, including Tuberculosis & Mediastinal Growths .... Cover 1

PAGE

LONGMANS, GREEN & CO.:—
Watson-Williams. Rhinology: A Text-book of the Diseases of the Nose and Accessory Sinuses Cover 1

MACMILLAN & CO.:—
Tubby ..... Deformities, including Diseases of the Bones and Joints Cover 1

MEDICAL PUBLISHING CO.:—
Lane, Sir A. .... Operative Treatment of Fractures 7

MURRAY:—
Brunton, Sir L. .... Therapeutics of the Circulation 5

NISBET & CO.:—
Romer & Creasy .. Bonesetting and the Treatment of Painful Joints.... Cover 1

SAUNDERS COMPANY:—
Bass & Johns .... Alveolodental Pyorrhœa 3
Gant ..... Diarrhœa 3

PAGE

SAUNDERS CO.—(Continued).
Saunders' Important New Books and New Editions ..... Cover 1
Scudder.... Treatment of Fractures 3
Tousey .... Medical Electricity, X Rays and Radium 3

WRIGHT & SONS (BRISTOL):—
Index of Differential Diagnosis of Main Symptoms ..... Cover 1
Smith ..... Lateral Spinal Curvature and Flat Foot, and their Treatment by Exercises Cover 1

MEDICAL LIBRARIES, &c.:—
Behnke—
Stammering, Lisping, and Cleft-Palate Speech 7
Ketley—
Stammering 7
Lewis & Co.'s Medical & Scientific Circulating Library..... 5
Matthews—
Wood: Application of Trusses to Hernia 5
Schnelle—
Stammering 7
Squire's Pocket Companion to the new British Pharmacopœia, 1914 ..... Cover 1

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Birmingham General Dispensary . 54
Birmingham and Midland Eye Hospital 53
Bristol Royal Infirmary 53
Cambridgeshire Asylum, Fulbourn 54
City and County of Bristol 54
County Asylum, Lancaster..... 55
County Borough of Dewsbury Education Committee 54
Crichton Royal, Dumfries 54
Devonshire Hospital, Buxton 53
Elder Dempster & Co., Liverpool.. 55
General Lying-in Hospital, York-road, Lambeth 55
Gloucestershire Joint Committee on Tuberculosis 53
Grimsby and District Hospital ... 53
Harrogate Infirmary 55
Hornecastle Union 54
Hospital Secretary, Bryanston-street 55
Ingham Infirmary, &c., South Shields 53
King Edward VII.'s Hospital, Cardiff 53
Laboratories of Pathology and Public Health 53
Leeds Public Dispensary 53
Liverpool Infirmary for Children.. 53
Liverpool Stanley Hospital 54
London Homœopathic Hospital, Great Ormond-street 55
Lord Mayor Treloar Cripples' Hospital, Alton 54
Manchester Northern Hospital for Women and Children..... 54
National Hospital for the Paralysed and Epileptic 55
North Ormesby Hospital, Middlesbrough 53
North Riding Infirmary, Middlesbrough 54
Parish of Liverpool—Brownlow Hill Institution..... 55
Parish of St. Marylebone Workhouse 55
Queen Charlotte's Lying-in Hospital 54
Reeth Union and Rural District Council 55
Royal Albert Edward Infirmary and Dispensary, Wigan..... 53
Royal Free Hospital, Gray's Inn-road 55
Royal Institute of Public Health.. 55
Royal Salop Infirmary, Shrewsbury 52
Royal South Hants and Southampton Hospital 53
St. Andrew's Hospital, Dollis Hill 55
St. Mary, Islington, Infirmary, Highgate 55
Swansea Education Committee ... 54
Township of Toxteth Park 52
West Bromwich and District Hospital 53
West Ham and Eastern General Hospital 53
Westminster General Dispensary. 54
Westmorland Sanatorium, Meathop, Grange-over-Sands .. 54
Worcester County and City Asylum, Powick 55

ASSISTANCIES, MEDICAL:—
Arnold & Sons, Giltspur-street.... 55
Commanding Officer, Andover 55
Dyke, Oxford-street 56
Hatfield, Forest Hill 56
Locum, Cromwell-road 56
No. 563, L.O., Strand 55
No. 564, L.O., Strand 55
No. 565, L.O., Strand 56
No. 577, L.O., Strand 56
No. 589, L.O., Strand 56
Turner, Adam-street 55

ASYLUMS, HOMES, &c.:—
Abbotswood House, Cinderford .. 50
Ashwood House, Kingswinford .. 47
Barnsley Hall, Bromsgrove 52
Barrowood House Hospital 48
Bishopstone House, Bedford..... 52
Brunton House, Lancaster 52
Buntingford House Retreat, Buntingford 50
Camberwell House, Peckham-road 49
Capel Lodge Retreat and Sanatorium, near Folkestone 50
Cheadle Royal..... 48
Clarence Lodge, Clapham Park .. 52
Colthurst House, Alderley Edge .. 47
Coppice, The, Nottingham 48
Court Hall, Kenton, near Exeter.. 47
Dalrymple House, Rickmansworth 50
Dartmoor Sanatorium 50
David Lewis Colony, Alderley Edge 47
Duff House, Banff 51
"Emily Mangles" Convalescent Home, Farnham 52
Ghyllwoods 50
Grove House, Church Stretton.... 48
Grove, The, Catton, Norwich..... 48
Haydock Lodge, Newton-le-Willows 49
Heigham Hall, Norwich 48
Home for Epileptics, Maghull 47
Invernith Sanatorium, Colinsburgh 50
Littleton Hall, Brentwood 52
London Fever Hospital..... 48
Mailing Place, Kent 48
Melbourne House, Leicester 50
Mendip Hills Sanatorium 51
Meyrick, Brighton 52
Middleton Hall, Co. Durham..... 52
Moat House, Tamworth 48
Newmains Retreat, Lanarkshire.. 49
Nordrach-on-Dee, Banchory 51
Northumberland House, Finsbury Park 52
Northwoods House, Winterbourne 49
No. 381, L.O., Strand 52
No. 412, L.O., Strand 52
Peckham House..... 49
Pendyffryn Hall Sanatorium, Nordrach-in-Wales 51
Plympton House, Plympton 48
Portsmouth Corporation Mental Hospital 52
Ravenscroft House, Golders Green 52
St. Andrew's Hospital, Dollis Hill 52
St. Andrew's Hospital, Northampton 48
St. Luke's Hospital for Mental Diseases 52
St. Raphaels, Buxted, Sussex 49
Shaftesbury House, Formby-by-the-Sea..... 49

ASYLUMS—(Continued).
Springfield House Private Asylum, Bedford 47
Stretton House, Church Stretton.. 48
The General Manager, Cravenstreet 52
The Grange, near Rotherham 48
Vale of Clwyd Sanatorium 50
Warneford Asylum, Oxford..... 47
Wye House, Buxton 48

HEALTH RESORTS, BATHS, &c.:—
Davos 47
Droitwich Brine Baths 47
Smedley's, Matlock 47
Woodhall Spa 51

HOMES WANTED:—
No. 571, L.O., Strand 57

HOUSE & ESTATE AGENTS:—
Caudle & Co., Westcliff..... 57
CONSULTING-ROOMS:—
Rutley, Son & Vine, Euston-road.. 57

LIFE & FIRE ASSURANCES, &c.:—
Medical, Sickness and Accident Society..... 29
Prudential..... 45

MASSAGE:—
Associated Male Nurses and Masseurs 45
London School of Massage 43

MEDICAL ACCOUNTANTS, &c.:—
Turner 56

MEDICAL AGENTS:—
Fieldhall, Limited 56
Manchester Clerical, &c., Association 57
Medical Agency 56
Moore & Co..... 55
Needes, Herbert 56
Needes, J. C. 56
Peacock & Hadley..... 56
Scholastic, Clerical, &c., Association 56
Turner 56

MEDICAL SCHOOLS:—
(LONDON.)
Charing Cross Hospital Medical School 40
London School of Clinical Medicine 40
Middlesex Hosp. Medical School.. 41
National Dental Hospital and College..... 41
St. Bartholomew's Hospital and College 39
St. Mary's Hospital Medical School 40
St. Thomas's Hospital Medical School 41
University College Hosp. Medical School 42
West London Post-Graduate College 39
(PROVINCIAL, &C.)
Edinburgh School of Medicine for Women 44
University of Bristol 43
University of Durham College of Medicine, Newcastle-upon-Tyne 43
University of Leeds..... 44

NURSING INSTITUTES:—
Co-operation of Temperance Male and Female Nurses 48
General Nursing Association..... 45
Hospital for Sick Children, Great Ormond-street 45
London Nurses' Association 48
London Temperance Male and Female Nurses Co-operation .. 45
Male Nurses Temperance Co-operation 45
Mental Nurses Association 45
Mental Nurses' Co-operation..... 43
New Mental Nurses' Co-operation..... 47
Nurses' Co-operation, Portland-place 45
St. Bartholomew's Hosp. Trained Nurses' Institution 45
St. John's House 45
St. Luke's Hospital, E.C. 45
Temperance Association of Male Nurses, Ltd..... 48
Temperance Male Nurses Co-operation 46
The Retreat, York 48

OFFICIAL NOTICES:—
City of London Lying-in Hospital 40
London School of Massage..... 41
London School of Tropical Medicine 40
Queen Charlotte's Lying-in Hospital 40
Royal College of Surgeons of England 40
Royal Institute of Public Health.. 40
St. Bartholomew's Hospital and College..... 39
University of Cambridge 40
University of London, University College..... 41
York-road General Lying-in Hospital, Lambeth 40

PARTNERSHIPS & PRACTICES:—
Arnold & Sons, Giltspur-street.... 56
Cozens-Hardy & Jewson, Norwich 57
Lee & Martin, Birmingham..... 56
Manchester Medical and Scholastic Association..... 57
No. 515, L.O., Strand 56
No. 538, L.O., Strand 57
No. 565, L.O., Strand 57
No. 588, L.O., Strand 57
No. 570, L.O., Strand 56
Renton & Renton, Harrogate 57
Turner, Adam-street 56

RAILWAY & STEAMSHIP CO.'S.:—
New Zealand Shipping Co..... 45

TUTORS & LECTURERS:—
Beckton 44
Behnke 44
Weymouth 44

For Index to Trade and Miscellaneous Advertisements see page 4.

A Presidential Address
ON
THE COMMON AIMS OF SCIENCE AND HUMANITY.

Delivered before the British Association for the Advancement of Science, at Manchester, on Sept. 7th, 1915,

BY PROFESSOR ARTHUR SCHUSTER, D.Sc., Sc.D., LL.D., DR. ÈS SC., F.R.S.

LADIES AND GENTLEMEN,—Under the influence of the diversity of pursuits imposed upon us by the conditions of modern life, different groups of the community—men of business, men of science, philosophers, or artists—have acquired detached and sometimes opposing interests. Each group, impressed by the importance of its own domain in the life of the nation, and focussing its vision on small differences and temporary rivalries, was in danger of losing the sense of mutual dependence. But in the shadow of a great catastrophe it has been brought home to us that the clash of interests is superficial, and the slender thread of union which remained has grown into a solid bond. What is the fibre from which the bond is twined? Patriotism may express its outward manifestation, but its staple is the mental relationship which remains continuous and dominant even in normal times, when each of us may peacefully go to earn his living and enjoy the course of his intellectual life.

Outwardly the community is divided into heterogeneous elements with mental attitudes cast in different moulds, and proceeding along separate roads by differing methods to different ideals. Yet as we eliminate the superficial, and regard only the deep-seated emotions which control our thoughts and actions, the differences vanish, and the unity of purpose and sentiment emerges more and more strongly. Mind and character, no doubt, group themselves into a number of types, but the cleavage runs across, and not along, the separating line of professions.

THE FUNCTIONS OF THE ASSOCIATION.

Were it otherwise, the British Association could not perform one of its most important functions—a function not, indeed, originally contemplated, but resulting indirectly from the wise and democratic provisions in its constitution, which enabled it to adapt itself to the changing needs of the time. Our founders primarily considered the interests of scientific men; their outlook was restricted and exclusive, both as regards range of subject and membership. In the words of Sir David Brewster, who gave the first impulse to its formation, it was to be "an Association of our nobility, clergy, gentry, and philosophers."

The meetings were intended to promote personal intercourse, to organise research, to advocate reform of the laws hindering research, and to improve the status of scientific men. The right of membership was confined to those who already belonged to some learned society, and William Whewell, one of the principal supporters of the movement, even suggested that only authors of memoirs published by a learned society should be admitted.[1] He emphasised this proposal by the recommendation[2] "in some way to avoid the crowd of lay members whose names stand on the list of the Royal Society." The reform of the Patent Laws and the introduction of an international copyright were suggested as subjects suitable for discussion, not apparently from the point of view of general advantage, but merely in the interests of one section of the community.

Whatever the objects of the founders of the Association may have been, it is obvious that questions of public importance could not be permanently excluded from meetings, the success of which depended on the interest stimulated in the community. The Statistical Section, which owed its origin to the visit, at the first Oxford meeting (1836), of Quetelet, the Belgian astronomer and economist, was the first to assert itself by engaging in a discussion of the Poor Laws. Whewell deeply resented this violation of academic neutrality: "It was impossible," he wrote, "to listen to the Proceedings of the Statistical Section on Friday without perceiving that they involved exactly what it was most necessary and most desired to exclude from our Proceedings,"[3] and again: "Who would propose (I put it to Chalmers, and he allowed the proposal to be intolerable) an ambulatory body, composed partly of men of reputation and partly of a miscellaneous crowd, to go round year by year from town to town and at each place to discuss the most inflammatory and agitating questions of the day?"[4]

Fortunately for our Association, this narrow-minded attitude did not prevail, and our records show that, while not avoiding controversial and even inflammatory subjects, we have been able to exercise a powerful influence on the progress of science. The establishment of electric units, universally accepted throughout the world, originated in the work of one of our committees; the efforts which led to the foundation of the National Physical Laboratory, one of the most efficient and beneficial organisations in the country, received its first impulses from us; and the organisation of the first world service for the systematic investigation of earth tremors was established by the late Dr. Milne, working through one of our committees.

The success of these enterprises alone is sufficient to show that we are not merely a body promoting social intercourse between men of science and the rest of the community. Nevertheless, it may be admitted that our efforts have been spasmodic, and the time has arrived to consider whether it may be possible to secure not only a greater continuity in our work, but also its better coördination with that of other scientific organisations. The present juncture affords the opportunity, and the changed conditions, which in the near future will affect all our institutions, render it indeed incumbent upon us once more to adapt ourselves to the needs of the times. Proposals for a move in that direction have already been made, and will no doubt be carefully considered by the council. In the meantime, I may draw your attention to the important discussions arranged for by our Economic Section, which alone will justify the decision of the council not to suspend the meeting this year.

[1] Others were allowed to join on recommendation by the General Committee. It was only in 1906 that this restriction, which had become obsolete, was removed.

[2] Whewell's Writings and Letters, vol. ii., p. 128.

[3] Loc. cit., p. 289.

[4] It is much to be desired that the documents relating to the early history of the British Association should be published in a collected form.

IDEALISTIC AND MATERIALISTIC ASPECTS.

It must not be supposed that, even in the early days of the Association, Whewell's ideas of its functions were universally accepted. It is pleasant to contrast the lamentations of the omniscient professor of mineralogy with the weightier opinion of the distinguished mathematician who then held Newton's chair at Cambridge. At the concluding session of the second meeting of the Association Babbage expressed the hope "that in the selection of the places at which the annual meetings were to be held attention should be paid to the object of bringing theoretical science in contact with the practical knowledge on which the wealth of the country depends." "I was myself," he said, "particularly anxious for this, owing, as I do, a debt of gratitude for the valuable information which I have received in many of the manufacturing districts, where I have learned to appreciate still more highly than before the value of those speculative pursuits which we follow in our academical labours. I was one of those who thought at first that we ought to adjourn for our next meeting to some large manufacturing town, but I am now satisfied that the arrangement which has been made will be best adapted to the present state of the Association. When, however, it shall be completely consolidated I trust we may be enabled to cultivate with the commercial interests of the country that close acquaintance which I am confident will be highly advantageous to our more abstract pursuits."

Since then, as we all know, our most successful meetings have been held in manufacturing centres; but it is important to note that, while Babbage laid stress on the benefit which would accrue to pure science by being brought into contact with practical life, scientific men of the present day have more and more insisted on the services they, on their part, are able to render to the industries. The idealistic motive has thus given way to the materialistic purpose. Both aspects are perhaps equally important, but it is necessary to insist at the present time that the utilitarian drum can be beaten too loudly. There is more than one point of contact between different activities of the human mind, such as find expression in scientific pursuits or commercial enterprises, and it is wrong to base the advantages to be derived from their mutual influence solely, or even mainly, on the ground of material benefits.

I need not press this point in a city which has given many proofs that a business community may be prompted by higher motives than those which affect their pockets. It was not for utilitarian objects that repeated efforts were made since the year 1640 to establish a university in Manchester; it was not for reasons of material gain that the Royal Institution and Owens College were founded; nor was it because they increased the wealth of the district that the place of honour in our town hall has been given to Dalton and Joule.

THE INTELLECTUAL QUALITY OF THE MATHEMATICIAN.

When we glance at the various occupations of the working parts of a nation, comprising the student who accumulates or extends knowledge, the engineer who applies that knowledge, the geologist or agriculturalist who discloses the store of wealth hidden in the soil, the commercial man who distributes that wealth, it seems as if we ought to be able to name the qualities of intellect and temperament which in each pursuit are most needed to carry out the work successfully. But on trying to define these qualities we soon discover the formidable nature of the task. Reasoning power, inventive power, and sound balance of judgment are essential attributes in all cases, and the problem is reduced to the question whether there are different varieties of the attributes which can be assigned to the different occupations.

Among all subjects mathematics is perhaps the one that appears most definitely to require a special and uncommon faculty. Yet Poincaré—himself one of the clearest thinkers and most brilliant exponents of the subject—almost failed when he attempted to fix the distinguishing intellectual quality of the mathematician. Starting from the incontrovertible proposition that there is only one kind of correct reasoning, which is logical reasoning, he raises the question why it is that everybody who is capable of reasoning correctly is not also a mathematician, and he is led to the conclusion that the characterising feature is a peculiar type of memory. It is not a better memory, for some mathematicians are very forgetful, and many of them cannot add a column of figures correctly; but it is a memory which fixes the order in which the successive steps of reasoning follow each other without necessarily retaining the details of the individual steps. This Poincaré illustrates by contrasting the memory of a chess-player with that of a mathematician. "When I play chess," he says, "I reason out correctly that if I were to make a certain move I should expose myself to a certain danger. I should, therefore, consider a number of other moves and, after rejecting each of them in turn, I should end by making the one which I first contemplated and dismissed, having forgotten in the meantime the ground on which I had abandoned it." "Why, then," he continues, "does my memory not fail me in a difficult mathematical reasoning in which the majority of chess-players would be entirely lost? It is because a mathematical demonstration is not a juxtaposition of syllogisms, but consists of syllogisms placed in a certain order; and the order in which its elements are placed is much more important than the elements themselves. If I have this intuition—so to speak—of the order, so as to perceive at one glance the whole of the reasoning, I need not fear to forget its elements: each of these will take its right place of its own accord without making any call on my memory."[5]

MATHEMATICAL INVENTION.

Poincaré next discusses the nature of the intellectual gift distinguishing those who can enrich knowledge with new and fertile ideas of discovery. Mathematical invention, according to him, does not consist in forming new combinations of known mathematical entities, because the number of combinations one could form are infinite, and most of them would possess no interest whatever. Inventing consists, on the contrary, in excluding useless combinations, and therefore: "To invent is to select—to choose..... The expression 'choose' perhaps requires qualifying, because it recalls a buyer to whom one offers a large number of samples which he examines before making his choice. In our case the samples would be so numerous that a lifetime would not suffice to complete the examination. That is not the way things are done. The sterile combinations never present themselves to the mind of the inventor, and even those which momentarily enter his consciousness, only to be rejected, partake something

[5] Science et Méthode, pp. 46 and 47.

of the character of useful combinations. The inventor is, therefore, to be compared with an examiner who has only to deal with candidates who have already passed a previous test of competence."

All those who have attempted to add something to knowledge must recognise that there is a profound truth in these remarks. New ideas may float across our consciousness, but, selecting the wrong ones for more detailed study, we waste our time fruitlessly. We are bewildered by the multitude of roads which open out before us, and, like Poincaré when he tries to play chess, lose the game because we make the wrong move. Do we not all remember how, after the announcement of a new fact or generalisation, there are always many who claim to have had, and perhaps vaguely expressed, the same idea? They put it down to bad luck that they have not pursued it, but they have failed precisely in what, according to Poincaré, is the essence of inventive power. It may be bad luck not to have had a good idea, but to have had it and failed to appreciate its importance is downright incapacity.

An objection may be raised that before a selection can be made the ideas themselves must appear, and that, even should they arrive in sufficient numbers, the right one may not be among them. It may even be argued that Poincaré gives his case away by saying that "the sterile combinations do not even present themselves to the mind of the inventor," putting into a negative form what may be the essence of the matter. Moreover, a fertile mind like that of Poincaré would be apt to place too low a value on his own exceptional gifts. Nevertheless, if Poincaré's more detailed exposition be read attentively, and more especially the description of how the discoveries which made him famous among mathematicians originated in his mind, it will be found that his judgment is well considered and should not be lightly set aside. New ideas seldom are born out of nothing. They most frequently are based on analogies, or the recollection of a sequence of thoughts suggested by a different branch of the subject, or perhaps by a different subject altogether. It is here that the memory comes in, which is not a memory of detail, but a memory of premises with their conclusions, detached from the particular case to which they were originally applied. Before we pronounce an adverse opinion on Poincaré's judgment, we must investigate what constitutes novelty in a new idea; but the subject is too vast to be dealt with here, nor can I attempt to discuss whether an essential distinction exists between mathematical invention and that more practical form of invention with which, for instance, the engineer has to deal.

If Poincaré, by this introspective analysis of his own powers, has dimmed the aureole which, in the eyes of the public, surrounds the mathematician's head, he removes it altogether by his definition of mathematics. According to him, "Mathematics is the art of calling two different things by the same name." It would take me too far were I to try to explain the deep truth expressed in this apparently flippant form; physicists, at any rate, will remember the revolution created in the fundamental outlook of science by the application of the term "energy" to the two quite distinct conceptions involved in its subdivisions into potential and kinetic energy.

Qualities Leading to Success.

Enough has been said to show that the peculiar powers necessary for the study of one of the most abstract branches of knowledge may be expressed in terms which bring them down to the level at which comparison with other subjects is possible Applying the same reasoning to other occupations, the same conclusion is inevitable. The commercial man, the politician, and the artist must all possess the type of memory best suited to concentrate in the field of mental vision their own experiences as well as what they have learned from the experience of others; and, further, they must have the power of selecting out of a multitude of possible lines of action the one that leads to success; it is this power which Poincaré calls the inventive faculty.

The argument must not be pushed too far, as it would be absurd to affirm that all differences in the capability of dealing successfully with the peculiar problems that occur in the various professions may be reduced to peculiarities of memory. I do not even wish to assert that Poincaré's conclusions should be accepted without qualification in the special case discussed by him. What is essential, to my mind, is to treat the question seriously, and to dismiss the vague generalities which, by drawing an artificial barrier between different groups of professions, try to cure real or imaginary defects through plausible though quite illusory remedies. All these recommendations are based on the fallacy that special gifts are associated with different occupations. Sometimes we are recommended to hand over the affairs of the nation to men of business; sometimes we are told that salvation can only be found in scientific methods—what is a man of business, and what is a scientific method? If you define a man of business to be one capable of managing large and complicated transactions, the inference becomes self-evident; but if it be asserted that only the specialised training in commercial transactions can develop the requisite faculties, the only proof of the claim that could be valid would be the one that would show that the great majority of successful statesmen, or political leaders, owed their success to their commercial experience. On the other hand, every method that leads to a correct result must be called a scientific method, and what requires substantiating is that scientific training is better than other training for discovering the correct method. This proof, as well as the other, has not been, and, I think, cannot be, given. When, therefore, one man calls for the conduct of affairs "on business lines" and the other clamours for scientific methods, they either want the same thing or they talk nonsense. The weak point of these assertions contrasting different classes of human efforts is that each class selects its own strongest men for comparison with the weakest on the other side.

Theory and Practice.

The most fatal distinction that can be made is the one which brings men of theory into opposition to men of practice, without regard to the obvious truth that nothing of value is ever done which does not involve both theory and practice; while theory is sometimes overbearing and irritating, there are among those who jeer at it some to whom Disraeli's definition applies: the practical man is the man who practises the errors of his forefathers. With refined cruelty Nemesis infects us with the disease most nearly akin to that which it pleases us to detect in others. It is the most dogmatic of dogmatics who tirades against dogma, and only the most hopeless of theorists can declare that a thing may be right in theory and wrong in practice.

Why does a theory ever fail, though it may be sound in reasoning? It can only do so because

every problem involves a much larger number of conditions than those which the investigator can take into account. He therefore rejects those which he believes to be unessential, and if his judgment is at fault he goes wrong. But the practical man will often fail for the same reason. When not supported by theoretical knowledge he generalises the result of an observation or experiment, applying it to cases where the result is determined by an altogether different set of conditions. To be infallible the theorist would have to take account of an infinite number of circumstances, and his calculations would become unmanageable, while the experimenter would have to perform an infinite number of experiments, and both would only be able to draw correct conclusions after an infinite lapse of time. They have to trust their intuition in selecting what can be omitted with impunity, and if they fail it is mainly due to the same defect of judgment. And so it is in all professions: failure results from the omission of essential considerations which change the venue of the problem.

Though theory and practice can only come into opposition when one of them is at fault, there is undoubtedly a contrast in character and temperament between those who incline more towards the one and those who prefer the other aspect: some like a solitary life at the desk, while others enjoy being brought into contact with their fellows. There have at all times been men predestined by nature to be leaders, and leadership is required in all branches of knowledge—the theoretical as well as the more active pursuits; but we must guard against accepting a man's estimate of his own power to convert his thoughts into acts. In the ordinary affairs of life a man who calls himself a man of action is frequently only one who cannot give any reasons for his actions. To claim that title justly a man must act deliberately, have confidence in his own judgment, sufficient tenacity of purpose to carry it through, and sufficient courage to run the unavoidable risks of possible failure. These risks may be trivial or they may be all-important. They may affect the reputation of one unit of creation or involve the whole life of a nation, and according to the greatness of the issue we shall honour the man who, having taken the risk, succeeds. But whether the scale be microscopic or interstellar, the essence of the faculty of blending theory and practice is the same, and both men of books and men of action are to be found in the philosopher's study and the laboratory, as well as in the workshop or on the battlefield. Modern science began, not at the date of this or that discovery, but on the day that Galileo decided to publish his Dialogues in the language of his nation. This was a deliberate act destined to change the whole aspect of science which, ceasing to be the occupation of a privileged class, became the property of the community. Can you, therefore, deny the claim of being a man of action to Galileo, can you deny it to Pasteur, Kelvin, Lister, and a host of others? There are, no doubt, philosophers who cannot manage even their own affairs, and whom it would be correct to call pure theorists, but that proves nothing, because their defect makes them worse philosophers as well as worse citizens.

THE SCIENTIFIC MIND.

In his presidential address, delivered to this Association in 1899, Sir Michael Foster summarised the essential features of the scientific mind. Above all other things he considered that its nature should be such as to vibrate in unison with what it is in search of; further, it must possess alertness, and finally moral courage. Yet after enumerating these qualities, he arrives at the same result which I have tried to place before you, that there are no special peculiarities inherent in the scientific mind, and he expresses this conclusion in the following words: "But, I hear some one say, these qualities are not the peculiar attributes of the man of science, they may be recognised as belonging to almost everyone who has commanded or deserved success, whatever may have been his walk in life. That is so. That is exactly what I would desire to insist, that the men of science have no peculiar virtues, no special powers. They are ordinary men, their characters are common, even commonplace. 'Science,' as Huxley said, 'is organised common-sense, and men of science are common men drilled in the way of common-sense.'"

This saying of Huxley's has been repeated so often that one almost wishes it were true, but unfortunately I cannot find a definition of common sense that fits the phrase. Sometimes the word is used as if it were identical with *uncommon* sense, sometimes as if it were the same thing as common *nonsense*. Often it means untrained intelligence, and in its best aspect it is, I think, that faculty which recognises that the obvious solution of a problem is frequently the right one. When, for instance, I see, during a total solar eclipse, red flames shooting out from the edge of the sun the obvious explanation is that these are real phenomena caused by masses of glowing vapours ejected from the sun; and when a learned friend tells me that all this is an optical illusion due to anomalous refraction, I object on the ground that the explanation violates my common sense. He replies by giving me the reasons which have led him to his conclusions, and, though I still believe that I am right, I have to meet him with a more substantial reply than an appeal to my own convictions. Against a solid argument common-sense has no power and must remain a useful but fallible guide which both leads and misleads all classes of the community alike.[6]

ORGANISATION AND DISCIPLINE.

If we must avoid assuming special intellectual qualities when we speak of groups of men within one country, we ought to be doubly careful not to do so without good reason in comparing different nations. So-called national characteristics are in many cases matters of education and training; and, if I select one as an example, it is because it figures so largely in public discussions at the present moment. I refer to that expedient for combining individual efforts which goes by the name of organisation. An efficient organisation requires a head that directs and a body that obeys; it works mainly through discipline, which is its most essential attribute. Every institution, every factory, every business establishment is a complicated organism, and no country ever came to prominence in any walk of life unless it possessed the ability to provide for the efficient working of such organisms. To say that a nation which has acquired and maintained an empire, and which conducts a large trade in every part of the world, is deficient in organising power is therefore an absurdity. Much of the current self-depreciation in this respect is due to the confusion of what constitutes a true organisation, with that modification of it which to a

[6] Since writing the above, I find on reading Professor J. A. Thomson's Introduction to Science a similar criticism of Huxley's dictum. Professor Thomson's general conclusions are not, however, in agreement with those here advocated.

great extent casts aside discipline and substitutes coöperation. Though much may be accomplished by coöperation, it is full of danger in an emergency, for it can only work if it be loyally adhered to; otherwise it resembles a six-cylinder motor in which every sparking-plug is allowed to fix its own time of firing. Things go well so long as the plugs agree; but there is nearly always one among them that persists in taking an independent course, and when the machine stops complains that the driver is inefficient. The cry for organisation, justifiable as it no doubt often is, resolves itself, therefore, into a cry for increased discipline, by which I do not mean the discipline enforced at the point of the bayonet, but that accepted by the individual who voluntarily subordinates his personal convictions to the will of a properly constituted authority. This discipline is not an inborn quality which belongs more to one nation than to another; it is acquired by education and training. In an emergency it is essential to success, but if it be made the guiding principle of a nation's activity, it carries dangers with it which are greater than the benefits conferred by the increased facility for advance in some directions.

THE STUDY OF NATURE.

If there be no fundamental difference in the mental qualifications which lead to success in our different occupations, there is also none in the ideals which move us in childhood, maintain us through the difficulties of our manhood, and give us peace in old age. I am not speaking now of those ideals which may simultaneously incite a whole nation to combined action through religious fervour or ambition of power, but I am speaking of those more individual ideals which make us choose our professions and give us pleasure in the performance of our duties.

Why does a scientific man find satisfaction in studying Nature?

Let me once more quote Poincaré[7]:—

"The student does not study Nature because that study is useful, but because it gives him pleasure, and it gives him pleasure because Nature is beautiful; if it were not beautiful it would not be worth knowing and life would not be worth living. I am not speaking, be it understood, of the beauty of its outward appearance—not that I despise it, far from it, but it has nothing to do with science: I mean that more intimate beauty which depends on the harmony in the order of the component parts of Nature. This is the beauty which a pure intelligence can appreciate and which gives substance and form to the scintillating impressions that charm our senses. Without this intellectual support the beauty of the fugitive dreams inspired by sensual impressions could only be imperfect, because it would be indecisive and always vanishing. It is this intellectual and self-sufficing beauty, perhaps more than the future welfare of humanity, that impels the scientific man to condemn himself to long and tedious studies. And the same search for the sense of harmony in the world leads us to select the facts which can most suitably enhance it, just as the artist chooses among the features of his model those that make the portrait and give it character and life. There need be no fear that this instinctive and unconscious motive should tempt the man of science away from the truth, for the real world is far more beautiful than any vision of his dreams. The greatest artists that ever lived—the Greeks—constructed a heaven; yet how paltry that heaven is compared to ours! And it is because simplicity and grandeur are beautiful that we select by preference the simplest and grandest facts, and find our highest pleasure sometimes in following the gigantic orbits of the stars, sometimes in the microscopic study of that minuteness which also is a grandeur, and sometimes in piercing the secrets of geological times which attract us because they are remote. And we see that the cult of the beautiful guides us to the same goal as the study of the useful."

"Whence comes this harmony? Is it that things that appear to us as beautiful are simply those which adapt themselves best to our intelligence, and are therefore the tools which that intelligence handles most easily; or is it all the play of evolution and natural selection? In that case, those races only survived whose ideals best conformed with their interests, and while all nations pursued their ideals without regard to consequences, some were led to perdition and others achieved an empire. One is tempted to believe that such has been the course of history, and that the Greeks triumphed over the barbarians, and Europe, inheritor of Greek thought, rules the world, because the savages cared only for the sensual enjoyment of garish colours and the blatant noise of the drum, while the Greeks loved the intellectual beauty which is hidden beneath the visible beauty. It is that higher beauty which produces a clear and strong intelligence. If the mathematician's imagination is fired by the beauty and symmetry of his methods, if the moving spring of his action is identical with that of the artist, how much truer is this of the man of science who tries by well-designed experiments to reveal the hidden harmonies of Nature? Nor would it be difficult, I think, to trace the gratification inherent in the successful accomplishments of other intellectual pursuits to the same source."

THE ÆSTHETIC VALUE OF THE STUDY OF SCIENCE.

Though Poincaré was, I believe, the first to lay stress on the connexion between the search for the beautiful and the achievement of the useful, the æsthetic value of the study of science had previously been pointed out, and well illustrated, by Karl Pearson in his "Grammar of Science." As expressed by him: "It is this continual gratification of the æsthetic judgment which is one of the chief delights of pure science." Before we advance, however, any special claim for the pursuit of science based on these considerations we must pause to think whether they do not equally apply to other studies or occupations. For this purpose the nature of the æsthetic enjoyment involved must be remembered. We do not mean by it the pleasure we feel in the mere contemplation of an impressive landscape or natural beauty, but it resembles more the enjoyment experienced on looking at a picture where, apart from the sensual pleasure, we are affected by the relation between the result of the representation and that which is represented. The picture, quite apart from what it may be trying to imitate, has a certain beauty due to its contrast of colours or well-balanced arrangement. We have in one case a number of pigments covering a space of two dimensions and in the other the natural object in three dimensions made up of entirely different materials and showing an infinite variety of detail and appearance. By itself alone either a mere photographic representation or a geometrical

[7] Loc. cit., p. 15.

arrangement of colour and line leaves most of us cold, though both have their own particular beauty; the art consists in bringing them into connexion. Bearing in mind the æsthetic value of the relationship of the work of our brain or hand to external facts or appearances, it might easily be shown that what has been said of science equally applies to other studies, such as history or literature. We may even go further, and say that any occupation whatever from which we can derive an intellectual pleasure must possess to a greater or smaller degree the elements of combining the useful with the beautiful.

CAUSES INFLUENCING THE CHOICE OF A PROFESSION.

In order to trace in detail the part played by purely emotional instincts in directing the course of our lives we should have to study the causes which influence a child free to select his future profession. Having eliminated secondary effects, such as early associations or the personal influence of an inspiring teacher, we should probably be brought to a standstill by the dearth of material at our disposal or led into error by taking our own individual recollections as typical. Nevertheless, it is only through the record of each man's experience that we may hope to arrive at a result. If every man who has reached a certain recognised position in his own subject—it need not be pre-eminence—would write down his own recollections of what led him to make the choice of his profession we might hope to obtain facts on which a useful psychological study might be based. Scientific men as a class are not modest, but they share with other classes the reluctance to speak of their early life, owing to a certain shyness to disclose early ambitions which have not been realised. It requires courage to overcome that shyness, but I think that we need feel no shame in revealing the dreams of our childhood and holding fast to them despite the bondage of our weakness, despite the strife ending so often in defeat, despite all the obstacles which the struggle for existence has placed in our path. In some form they should persist throughout our lives and sustain us in our old age.

But the account of our early life should be simple, detached from any motives of self-depreciation or self-assertion, and free from any desire to push any particular moral or psychological theory. We want to trace the dawn of ambition, the first glimmering in the child's mind that there is something that he can do better than his fellows and reminiscences of early likes and dislikes which, though apparently disconnected from maturer tendencies, may serve as indications of a deep-seated purpose in life. It may be difficult to resist the temptation of trying to justify one's reputation in the eyes of the world, but it is worth making the effort. The only example that I know of such an autobiographical sketch is that of Darwin, which is contained in his "Life and Letters," published by his son, Sir Francis Darwin.

The ambition of a child to be better, cleverer, or more beautiful than its fellows is in the main, I think, a wish to please and to be praised. As the child grows up the ambition becomes more definite. It is not a sordid ambition for ultimate wealth or power, nor is it an altruistic ambition to do good for the sake of doing good. Occasionally it takes the form confessed to by Darwin when he says, "As a child I was much given to inventing deliberate falsehoods, and this was always done for the sake of causing excitement." This desire to be conspicuous was, in Darwin's case, consistent with extreme modesty, amounting almost to a want of confidence in himself, as appears in this passage: "I remember one of my sporting friends, Turner, who saw me at work with my beetles, saying that I should some day be a Fellow of the Royal Society, and this notion seemed to me to be preposterous."

We next come to the stage where a child is attracted by one subject more than another, and, if his choice be free, will select it for his life's career. What guides him in this choice? If it be said that a boy gravitates towards that subject which he finds easiest, we are led to the further question why does he find it easiest? It is on this point that more information is required, but I am inclined to answer in accordance with Poincaré's views that it is because its particular beauty appeals most strongly to his emotional senses. In questions of this kind everyone must form his own conclusions according to his personal recollections, and these convince me that the emotional factor appears already at an early age. It is the strong attraction towards particular forms of reasoning, more perhaps even than the facility with which reasoning comes, that carries us over the initial difficulties and the drudgery that must accompany every serious study.

CHARACTERISTIC ATTRIBUTES OF MEN OF SCIENCE.

I have already alluded to the different tendencies of individuals either to prefer solitary reflexion or to seek companionship. Almost in every profession we find men of both types. Darwin's autobiography furnishes a good example of the man who prefers to learn through quiet reading rather than through lectures, but to many men of science the spoken word is inspiring and contact with congenial minds almost a necessity.

From our present point of view the most interesting passages in Darwin's autobiography are those indicating the æsthetic feeling which, like Poincaré, he connects with scientific research. Referring to his early studies we find this passage: "I was taught by a private tutor, and I distinctly remember the intense satisfaction which the clear geometrical proofs gave me. I remember with equal distinctness the delight which my uncle gave me by explaining the principle of the vernier of a barometer." To a man who apparently had no pronounced facility of mastering mathematical difficulties this feeling of satisfaction is especially remarkable. The combination of scientific ability with leanings either to music, or art, or poetry, is very common, and examples are to be found in almost every biography of men of science. It is difficult, indeed, to name an eminent scientific man who has not strong leanings towards some artistic recreation: we find the poetic vein in Maxwell and Sylvester, the musical talent in Helmholtz and Rayleigh, and the enthusiastic though amateurish pictorial efforts of less important men. That the similarities are to be found also in temperament may be noticed on reading Arnold Bennett's article on "The Artist and the Public,"[5] where many passages will be seen to be applicable to students of science as well as to writers of fiction.

If we look for distinctions between different individuals we may find one in their leanings either towards the larger aspects of a question or the microscopic study of detail. The power of focussing simultaneously the wider view and the minute observation is perhaps the most characteristic attribute of those who reach the highest eminence in any profession, but the great majority of men have a notable predilection for the one or

[5] English Review, October, 1913.

other side. Though it is indispensable for a scientific man to study the details of the particular problem he is trying to solve, there are many who will lose interest in it as soon as they believe they can see a clear way through the difficulties without following up their solution to its utmost limits. To them detail, as such, has no interest, and they will open and shut a door a hundred times a day without being even tempted to inquire into the inner working of the lock and latch.

There is only one feature in the operation of the intelligence by means of which a sharp division may possibly be drawn between brain-workers showing special capabilities in different subjects. In some persons thought attaches itself mainly to language, in others to visualised images, and herein lies perhaps the distinction between the literary and scientific gift. Those who, owing to external circumstances, have resided in different countries are sometimes asked in what language they think. Speaking for myself, I have always been obliged to answer that, so far as I can tell, thought is not connected with any language at all. The planning of an experiment or even the critical examination of a theory is to me entirely a matter of mental imagery, and hence the experience, which I think many scientific men must have shared, that the conversion of thought into language, which is necessary when we wish to communicate its result to others, presents not only the ordinary difficulties of translation but reveals faults in the perfection or sequence of the images. Only when the logic of words finally coincides with the logic of images do we attain that feeling of confidence which makes us certain that our results are correct.

THE OBJECT OF SCIENCE.

A more detailed examination of the instinctive predilections of a child would, I think, confirm Poincaré's conclusion that a decided preference for one subject is in the main due to an unconscious appeal to his emotions. It should be remembered, however, that the second step of Poincaré's philosophy is as important as the first. The mere emotional impulse would die out quickly if it were not supplemented by the gratification experienced on discovering that the search for the beautiful leads us to results which satisfy our intellect as well as our emotions. There may still be bifurcations in the second portion of the road. Some may rest content with achieving something that supplies the material needs of humanity, others may be inspired to search for the deeper meaning of our existence.

There remains, therefore, some justification for the question why we persist in studying science apart from the mere intellectual pleasure it gives us. It was once a popular fallacy to assume that the laws of Nature constituted an explanation of the phenomena to which they applied, and people then attached importance to the belief that we could gauge the mind of the Creator by means of the laws which govern the material world, just as we might trace the purpose of a human legislator in an Act of Parliament. As this archaic interpretation was abandoned, philosophers went, in accordance with what politicians call the swing of the pendulum, to the other extreme. We can explain nothing, they said—in fact, we can know nothing—all we can do is to record facts. This modesty was impressive, and it became popular. I know, at any rate, one scientific man who has acquired a great reputation for wisdom by repeating sufficiently often that he knows nothing, and, though his judgment may be true, this frame of mind is not inspiring. As a corrective to the older visionary claims, which centred round the meaning of the word "explain," the view that the first task of science is to record facts has no doubt had a good influence. Kirchhoff laid it down definitely that the object of science is to describe Nature, but he did not thereby mean that it should be confined to recording detached observations; this would be the dullest and most unscientific procedure. Description, in the sense in which Kirchhoff uses it, consists in forming a comprehensive statement, gathering together what till then was only a disconnected jumble of facts. Thus the apparently quite irregular motions of the planets, as observed from the earth, were first collected in tabular form. This was a necessary preliminary, but was not in itself a scientific investigation. Next came Kepler, who by means of three laws summed up the facts in their main outlines, and the description then took a more refined form, substituting half a page of printing for volumes of observations. Finally, Newton succeeded in predicting the planetary movements on the assumption of a gravitational attraction between all elements of matter. According to Kirchhoff, the chief merit of this discovery would lie in its condensing Kepler's three laws into one hypothesis. This point of view is not necessarily opposed to that of Poincaré, because it is exactly the simplicity of Newton's explanation that appeals most strongly to our æsthetic sense, but there is an important difference in the manner of expression. However beautiful an idea may be, it loses its effect by being placed before us in an unattractive form. This criticism also applies to Mach, according to whom the object of science is to economise thought, just as it is the object of a machine to economise effort. Logically, this definition is justified, and it may be the best that can be given, if we prefer using a technical expression to confessing an emotional feeling. But why should we do so? Is it not better to recognise that human intelligence is affected by sentiment as much as by reasoning? It is a mistake for scientific men to dissociate themselves from the rest of humanity, by placing their motives on a different, and, at the best, only superficially higher, level. When an adventurous spirit, for instance, desires to organise an expedition to unknown regions of the world, we try to induce our governments to provide the necessary funds by persuading them, and incidentally ourselves, that we do so because important scientific results may be expected from the expedition. This may actually be the case, but we are mainly affected by the same motives as the rest of the community. If the truth be told, we are as curious as they to know what every corner of the earth looks like, and we join them in wishing to encourage an enterprise requiring perseverance and involving danger.

SCIENCE AND THE PREDICTION OF THE FUTURE.

I fully realise that the wish to justify one's own work in the eyes of the world will always lead to fresh attempts to find a formula expressing the objects which we desire to attain. Enough, however, has been said to show that the definition must take account of sentiment, without insisting too much upon it. Nor can we hope, in view of the

variety of intellectual and emotional pleasures which combine to create the charm of science, to include all points of view, but if I were forced to make a choice I should say that the object of science is to predict the future. The wish to know what lies before us is one of the oldest and most enduring desires of human nature; often, no doubt, it has degenerated and given rise to perverted and ignoble longings, but its accomplishment, when it can be achieved by legitimate inquiry, is a source of the purest and most satisfying enjoyment that science can give. We feel that enjoyment each time we repeat an old and perhaps hackneyed experiment. The result is known beforehand, but be it only that we expect the colour of a chemical precipitate to be green or yellow, be it only that we expect a spot of light to move to the right or left, there is always a little tremor of excitement at the critical moment and a satisfying feeling of pleasure when our expectation has been realised. That pleasure is, I think, enhanced when the experiment is not of our own making but takes place uncontrolled by human power. In one of Heine's little verses he makes light of the tears of a young lady who is moved by the setting sun. "Be of good cheer," the poet consoles her, "this is only the ordinary succession of events: the sun sets in the evening and rises in the morning." If Heine had been a man of science, he would have known that the lady's tears found a higher justification in the thought of the immutable and inexorable regularity of the sun's rising and setting than in the fugitive colour impression of his descent below the horizon, and that her emotions ought to be intensified rather than allayed by the thought of his resurrection in the morning —everybody's life contains a few unforgettable moments which, at quite unexpected times, will vividly rise in his mind, and there are probably some in this hall who have experienced such moments at the beginning of a total eclipse of the sun. They have probably travelled far, and gone through months of preparation, for an event which only lasts a few minutes. The time of first contact is approaching, in a few seconds the moon is about to make its first incision in the solar disc, and now the observer's thoughts come crowding together. What if there were a mistake in our calculations? What if we had chosen a spot a few miles too far north or too far south? What if the laws of gravitation were ever so little at fault?—But now at the predicted time, at the calculated spot on the sun's edge, the dark moon becomes visible, and the feeling of relief experienced concentrates into one tense instant all the gratitude we owe those who have given precision to the predictions of celestial movements, leaving them expressible by a simple law which can be written down in two lines. It is this simplicity of the law of gravitation, and its accuracy, which some day may show limitations, but has hitherto withstood all tests, that gives to astronomy its pre-eminence over all sciences.

Indeed, if we classify the different sections into which science may be divided, I think it may be said that their aim, in so far as it is not purely utilitarian, is always either historic or prophetic; and to the mathematician history is only prophecy pursued in the negative direction. It is no argument against my definition of the objects of science that a large section of its subdivisions has been, and to some extent still is, mainly occupied with the discovery and classification of facts; because such classification can only be a first step, preparing the way for a correlation into which the element of time must enter, and which therefore ultimately must depend either on history or prophecy.

THE COMMON INTEREST OF SCIENCE AND HUMANITY.

Latterly men of science, and in particular physicists, have given increased attention to the intrinsic meaning of the concepts by means of which we express the facts of Nature. Everything —who can deny it?—is ultimately reduced to sense impressions, and it has therefore been asserted that science is the study of the mind rather than of the outside world, the very existence of which may be denied. The physicist has thus invaded the realm of philosophy and metaphysics, and even claims that kingdom as his own. Two effects of these efforts, a paralysing pessimism and an obscure vagueness of expression, if not of thought, seriously threatened a few years ago to retard the healthy progress of the study of Nature. If the outside world were only a dream, if we never could know what really lies behind it, the incentive which has moved those whose names stand out as landmarks in science is destroyed, and it is replaced by what? By a formula which only appeals to a few spirits entirely detached from the world in which they live. Metaphysicians and physicists will continue to look upon science from different points of view, and need not resent mutual criticisms of each other's methods or conclusions. For we must remember that most of the good that is done in this world is done by meddling with other people's affairs, and though the interference is always irritating and frequently futile, it proves after all that our interests converge towards a common centre.

According to Poincaré, the pleasure which the study of science confers consists in its power of uniting the beautiful with the useful; but it would be wrong to adopt this formula as a definition of the object of science, because it applies with equal force to all human studies. I go further and say that the combination of the search for the beautiful with the achievement of the useful is the common interest of science and humanity. Some of us may tend in one direction, some in another, but there must always remain a feeling of imperfection and only partial satisfaction unless we can unite the two fundamental desires of human nature.

THE ÆSTHETIC IDEAL AND MATERIAL AIMS.

I have warned you at the beginning of this discourse not to beat the utilitarian drum too loudly, and I have laid stress throughout on the idealistic side, though the most compelling events of the moment seem to drive us in the other direction, and the near future will press the needs of material prosperity strongly upon us. I must guard myself, therefore, against one criticism which the trend of my remarks may invite. At times, when the struggle for existence keeps masses in permanent bondage, in a society in which a multitude of men and women have to face starvation, and when unfortunate, though purely accidental, surroundings in childhood drive the weak into misery, is it not futile to speak of æsthetic motives? Am I not, while endeavouring to find a common bond between all sections of the community, in reality drawing a ring round a small and privileged leisured class, telling them these enjoyments are for you and for you alone? Should I not have found a surer ground for the claims of science in its daily increasing necessity for the success of our manufactures and commerce?

I have said nothing to indicate that I do not put the highest value on this important function of science, which finds its noblest task in surrendering the richness of its achievements to the use of humanity. But I must ask you to reflect whether the achievement of wealth and power, to the exclusion of higher aims, can lead to more than a superficial prosperity which passes away, because it carries the virus of its own doom within it. Do we not find in the worship of material success the seed of the pernicious ambition which has maddened a nation and plunged Europe into war? Is this contempt for all idealistic purposes not responsible for the mischievous doctrine that the power to possess confers the right to possess, and that possession is desirable in itself without regard to the use which is made of it? I must therefore insist that if we delight in enlisting the wealth accumulated in the earth, and all the power stored in the orbs of heaven, or in the orbits of atomic structure, it should not be because we place material wealth above intellectual enjoyment, but rather because we experience a double pleasure if the efforts of the mind contribute to the welfare of the nation. When Joule taught us to utilise the powers at our disposal to the best advantage he did it not—and his whole life is a proof of it—to increase either his own wealth or that of the nation, but because, brought up in commercial life and deeply imbued with the deep insight and genius of science, he found his greatest delight in that very combination of æsthetic satisfaction and useful achievement which Poincaré has so well described. And again, when another of our fellow-citizens, Henry Wilde, showed how electrical power can be accumulated until it became an efficient instrument for the economic transmission of work, he found his inspiration in the intellectual gratification it gave him, rather than in the expectation of material gain. I am drawing no ring round a privileged class, but urge that the hunger for intellectual enjoyment is universal and everybody should be given the opportunity and leisure of appeasing it. The duty to work, the right to live, and the leisure to think are the three prime necessities of our existence, and when one of them fails we only live an incomplete life.

SCIENCE AND THE STATE.

I should have no difficulty in illustrating by examples, drawn from personal experience, the power which the revelations of science can exert over a community steeped in the petty conflicts of ordinary life; but I must bring these remarks to a conclusion, and content myself with the account of one incident.

An American friend, who possessed a powerful telescope, one night received the visit of an ardent politician. It was the time of a Presidential election, Bryan and Taft being the opposing candidates, and feeling ran high. After looking at clusters of stars and other celestial objects, and having received answers to his various questions the visitor turned to my friend:

"And all these stars I see," he asked, "what space in the heaven do they occupy?"

"About the area of the moon."

"And you tell me that every one of them is a sun like our own?"

"Yes."

"And that each of them may have a number of planets circulating round them like our sun?"

"Yes."

"And that there may be life on each of these planets?"

"We cannot tell that, but it is quite possible that there may be life on many of them."

And after pondering for some time the politician rose and said, "It does not matter after all whether Taft or Bryan gets in."

Happy were the times when it could be said with truth that the strife of politics counted as nothing before the silent display of the heavens. Mightier issues are at stake to-day; in the struggle which convulses the world, all intellectual pursuits are vitally affected, and Science gladly gives all the power she wields to the service of the State. Sorrowfully she covers her face because that power, accumulated through the peaceful efforts of the sons of all nations, was never meant for death and destruction; gladly she helps, because a war wantonly provoked threatens civilisation, and only through victory shall we achieve a peace in which once more Science can hold up her head, proud of her strength to preserve the intellectual freedom which is worth more than material prosperity, to defeat the spirit of evil that destroyed the sense of brotherhood among nations, and to spread the love of truth.

ON THE PATHOLOGY OF TRENCH FROST-BITE.

BY J. LORRAIN SMITH, M.D. EDIN., F.R.S.,
PROFESSOR OF PATHOLOGY, UNIVERSITY OF EDINBURGH;
JAMES RITCHIE, M.D. OXON.,
PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF EDINBURGH;
AND
JAMES DAWSON, M.D. ABERD.,
NEUROLOGICAL HISTOLOGIST, LABORATORY OF THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

(*From the Department of Pathology, University of Edinburgh, and the Laboratory of the Royal College of Physicians of Edinburgh.*)

THE following investigation was undertaken at the request of the Medical Research Committee (National Health Insurance).

During the winter 1914–15 a large number of soldiers fighting in the trenches in Flanders became disabled from the effects of cold on their feet. The condition is to be distinguished from true frost-bite in which very severe cold causes necrosis of the tissues. In cases of trench frost-bite necrosis may occur, but it is not frequent, and the characteristic symptoms are swelling, pain, and disturbance of sensation in the feet.

A considerable amount of investigation has been carried out on true frost-bite, but less attention has been paid to the effects of moderate cold on the feet of the soldiers in the trenches. Our inquiry consisted of two parts: (1) the observation of the clinical condition of a number of cases which were under treatment in the military hospitals in Edinburgh; and (2) a study of the effect on rabbits' feet of conditions similar to those to which the soldiers were subjected.

In the medical records of modern campaigns, accounts of trench frost-bite are frequently to be found. Larrey's (1812[1]) description of the effects of cold in Napoleon's Russian campaign in 1812 shows that he was familiar with the condition. In the history of the Crimean War it is cited that cases occurred when the temperature was above

[1] Larrey: Mémoires de Chirurgie Militaire, 1812, tome iii., p. 60.

freezing point, especially when there was rain and a cold north-east wind with frost at night. Other factors which helped to bring about the condition were lack of opportunity for changing the clothes, tight boots, fatigue, defective nutrition, and diseases such as scurvy or fever. In the later stages of the Crimean campaign conditions were much improved and trench frost-bite became much less frequent and was then usually associated with exposure to extreme cold. Similar cases of frost-bite were described by Davys (1904[2]) and Powell Connor (1904[3]) among the members of the British Mission to Thibet in 1903, and again in the Balkans in 1913 by Weiting (1913[4]) and by Page (1914[5]).

In all these campaigns the condition was associated with prolonged exposure of the feet to a moderate degree of cold while at the same time they were immersed in water or mud. That the condition was the result of direct exposure to cold was shown from the fact that the severity of the lesion was determined by the extent to which it had penetrated from the surface. Yet it differed essentially from the frost-bite due to exposure to severe cold; as a rule the parts affected did not after a short time become dead beyond hope of recovery, and the face and hands usually escaped.

Clinical Observations.

We had the opportunity of examining clinically 51 cases of trench frost-bite. In all these cases there was a definite lesion in the feet, and we have had no opportunity of investigating the type of functional disease described by Fearnsides and Culpin (1915[6]). In 23 cases the men had had weeks or months of turns in the trenches; in the others they had been exposed one to four times. The duration of the time of the turns varied; in a few cases it was 6 to 11 days, but in the majority it was 48 to 72 hours. The turn in the trenches was followed by a turn in support, and this alternation was usually repeated once, after which the men were sent back to billets for a period of rest. During the period they were in trenches or in support they had no opportunity of removing their boots, and they could attend to their feet only when they reached the billets.

The trenches from which the cases of frost-bite came were wet in all instances except two. To get to the trenches the soldiers had often to wade through water and mud which sometimes reached the waist. Their feet were thus often thoroughly wet before they reached the trenches, and often the weather was wet and cold. The water in the trenches not infrequently contained crystals of ice. In spite of the severity of these conditions the men found it possible to keep their bodies warm; in our series there was only one case of frost-bite of the hand. Fires in the dug-outs were not available for warming the feet. The general result was that the men had to keep standing, more or less stationary, in mud or water at a temperature near freezing point.

There was among the men who had been repeatedly in trenches in these conditions often a history of numbness in the feet in the period before the final disablement. The feet would also show slight swelling, but these symptoms disappeared before the next turn and they were able to go again into the trench. The final breakdown was probably due to special severity of the conditions on the occasion, for in several cases a number of men from one company or regiment had to report sick on account of their feet at the same time.

Generally, the history of the final breakdown was that on the second day the feet began to feel numb and there was a sense of tightness due to commencing swelling. When the turn was over the men who were suffering had great difficulty in getting out of the trenches. The feet were paralysed and had lost sensation; occasionally, but less frequently, they were painful. In some cases the men could not walk at all, in others they crawled or hopped along till transport was available. The description frequently given by the men was that they felt as if walking on stilts. Swelling appeared in many instances only after the boots had been removed, and sometimes it was not present till the day following. The swelling and numbness were both confined to the feet as a rule. Pain was not a specially prominent symptom at first; it frequently increased in intensity as the swelling and numbness disappeared. Blistering and vesication were sometimes present from the beginning, usually they came on later, and they were absent in many cases. It is impossible to say exactly at what stage the redness and discolouration appeared; the feet were so stained with the mud that this point could not be determined. There was seldom pain above the feet, but in a few cases there were cramps. In one case only was there swelling of the inguinal glands, and in this case there was a septic excoriation of the foot. In two cases only was there serious gangrene of the toes, but in both several toes were lost; both these cases had been exposed to specially severe cold.

As a rule, a fortnight had elapsed before the men reached the hospitals in Edinburgh. During this time the treatment had consisted in rest and the application of dusting powder or of belladonna. The progress towards recovery was in any case slow, and we could form a picture of the earlier stages.

The swelling was present in the toes and extended usually to the metatarsal region, sometimes as far as the ankle but never above the joint. In slight cases there was either no discolouration or only a slight blush over the ends of the toes; the feet were usually warm to the touch. In more severe cases the discolouration was greater, there was more swelling, and the skin, especially on the plantar aspect of the feet, was hard. The increase in colour was due to hæmorrhagic infiltration and was observed specially under the nails. In several cases there was excoriation on the internal aspect of the smaller toes. In one or two cases the whole of the distal part of the foot was black and mummified, and the affected area was defined by a sharp margin. The swelling was in many cases resistant to pressure, more than that of simple œdema. In cases where the skin had become hard it was separating and leaving a layer of normal skin beneath. This separation occurred also in cases of general discolouration and was confined to the skin; sometimes even when a sharp limiting line had appeared the necrosis was still superficial.

During recovery there was sometimes a very troublesome and persistent pain which was described as the feeling associated with recovery from "sleep" in the feet; there was in other

[2] Davys: Indian Medical Gazette, 1904, vol. xxxix., p. 245.
[3] Connor, P.: Ibid., p. 365.
[4] Weiting: Centralblatt für Chirurgie, 1913, Jahrg. 40, S. 593.
[5] Page: Brit. Med. Jour., 1914, vol. ii., p. 386.
[6] Fearnsides and Culpin: Brit. Med. Jour., 1915, vol. i., p. 84.

cases a burning pain usually worst at night and interfering with the patient's sleep. Occasionally alternating heat and cold feelings were experienced. The soldiers described their feet as "feeling like logs." There was marked anæsthesia in the area of the toes and extending to a fairly definite line across the mid-metatarsal region. Sometimes this area extended further back on the plantar aspect of the foot; sometimes it was limited to the great or little toes. The zone limiting the anæsthesia was usually paræsthetic, and here deep pressure caused pain in a few cases. Deep pain was also experienced when the man stood on his feet and this might pass up the legs. The plantar reflex was usually exaggerated. There was no evidence that these men had previously been liable to chilblains.

In reference to the possible influence of constriction of the feet, it is important to note that all these men except one had been wearing boots and puttees and that the lesions were entirely confined to the parts encased in boots. The exception was a private in a Highland regiment who wore shoes and gaiters. One of the patients was an artilleryman, and he volunteered the statement that few of the men in this branch of the service suffered from frost-bite; it is probable that not only the better conditions but also the freedom of movement in artillery work accounted for the immunity from frost-bite in the feet.

Experimental Observations.

The experiments were carried out in the cold chamber of the Laboratory of the Royal College of Physicians of Edinburgh, and the requisite degree of cold was obtained by keeping the temperature of the chamber about zero.

The observations were made on rabbits. One of the hind feet was shaved and the animal was then placed in a wide glass cylinder standing on a layer of earth which was kept dry or moist according to requirements. By this means it was found possible to reproduce in the rabbits' feet the œdematous swelling characteristic of trench frost-bite. In the first place, it was found that when the mud was both wet and cold the swelling became marked in from two to three days. On the other hand, when the mud was kept dry the cold had much less effect. Constriction of the limb by means of a band of sticking-plaster increased the tendency to œdema in the feet exposed to cold. This effect was not obtained by a single band, but when the band was taken twice round the limb the cold produced œdema more rapidly.

The effect of applying warm water (at 37° C.) to the foot after it had been exposed to the cold was to increase the œdema very markedly. The swelling was confined to the parts which were directly exposed to the cold; it was less marked in the hind foot which had not been shaved. The animal with a swollen foot could still walk with it, though there was a certain amount of limping. On the other hand, the evidence of anæsthesia in the foot was indefinite. When the rabbit was placed in its cage in the animal house after an experiment the swelling rapidly disappeared and it walked about normally after 24 hours.

The microscopic examination of the tissues showed that *the chief effect of the cold was on the blood-vessels*. The lumen was dilated and contained a certain amount of fibrin deposit; the endothelium of the intima was swollen; there was vacuolation in the muscle fibres of the media, and there was an increase in the number of cells in the perivascular tissue. The lymphatic vessels were in some cases normal in appearance; in others they were dilated and filled with masses of fibrin, but as a rule the walls were unaltered. In the tissue spaces there was a copious deposit of fibrin in the form of threads and granules; the collagen bundles of the fibrous tissue were separated and swollen, and in areas where the exudate was abundant they were undergoing solution in it. In certain cases, and especially when the œdema had been present for a longer time, there was a diffuse infiltration of the swollen tissue with leucocytes. In cases where the foot had been subjected to warm water after exposure to cold there was a diffuse infiltration with red corpuscles which here and there amounted to hæmorrhage.

Generally, a few staphylococci were found in the tissues, and in one case streptococci were present. These bacteria had not, however, acted as foci of inflammation; they had come from the skin surface, especially in cases where there were slight abrasions.

The changes in the *nerves* consisted in œdematous swelling of the axis-cylinders, and this appeared to be merely a part of the general œdema of the feet. There was no sign of degeneration of the myelin in Marchi or Donaggio sections of the nerve or cord. The nerve cells in the cord were normal. The only degenerative change found in these experiments was a very slight blackening of the sheath in a Marchi section of a nerve twig taken from an area that had been frozen with carbonic acid snow. In other words, the severe cold of true frost-bite may cause changes in the nerves, but they are not found in cases of the milder type of trench frost-bite. The œdema noted in the latter condition taken along with the general infiltration would, however, account for the anæsthesia.

The *voluntary muscle* showed some slight changes; the staining was modified; there was a loss of striation. In cases of longer standing there was some leucocytic infiltration, œdema, and deposit of fibrin between the fibres. Very definite changes of the nature of disintegration and regeneration are seen in the muscle in cases of true frost-bite.

The *regional lymph glands* were enlarged from dilatation of their sinuses and from hypertrophy of the lymphoid follicles. The sinuses contained a deposit of fibrin threads and granules, and in the meshwork of fibrin were red corpuscles, polymorphs, and proliferated endothelial cells; the endothelial cells were actively phagocytic and contained red corpuscles and polymorphs. There was no evidence of the presence of micrococci. The follicles showed overgrowth of the cells in the germ centres and infiltration with polymorphs and endothelial phagocytes.

We have had no opportunity of examining tissues from the human subject after trench frost-bite, but there is no reason to doubt that the changes in the animal tissues are the same as those in man. The effect is inflammatory and is due to the direct action of the cold on the tissue. The injury to the blood-vessels is the most important element. The walls are so damaged that they are unable to perform their function; an excessive amount of fluid is poured out and accumulated in the tissue. From this fibrin is deposited, and the fibrous elements of the tissue are disintegrated more or less. When there is any congestion of the damaged vessels as may be caused by the application of warmth, the walls rupture and blood corpuscles are poured into

the tissue. Recovery from such a condition is naturally slow. Not only has the swelling to subside, but the damaged vessel wall has to be repaired so that it can bear the strain of normal circulation.

We carried out a few observations on the effect of actually freezing the tissues by the application of carbonic acid snow. Our observations confirm those of previous observers, and show that the slighter stages of injury in true frost-bite are essentially similar to trench frost-bite. In true frost-bite the predominant change is death of the affected part; in trench frost-bite there is little or no necrosis, but an exudative inflammation occurs in the parts directly exposed to the cold.

These experiments throw a considerable amount of light on the clinical phenomena of trench frost-bite. The degree of cold, the increase of effect due to wet earth as compared with dry, the time of exposure (48–72 hours), the localisation of the œdematous swelling in the feet and the effects of constriction are points in which the effects on the rabbits were very similar to the phenomena of trench frost-bite. On the other hand, the swelling in the feet of the rabbits subsided much more rapidly than that in the men's feet, and there was little evidence that the anæsthesia and pain characteristic of the condition in the men were experienced by the rabbits. Finally, the harmful effect of raising the temperature of the feet damaged by cold was clearly demonstrated. The animal's feet were placed in water which was at the beginning of the time at 37° C. and cooled down gradually till it was about 20° C. The result was a marked increase in the œdematous swelling and a considerable amount of hæmorrhagic infiltration. From this it becomes evident that during the period of recovery attention must be concentrated on preventing any strain on the damaged blood-vessels. Anything which causes congestion will have a tendency to increase the injury to the vessel walls already damaged by exposure to cold.

Practical Considerations for Prevention.

The following practical considerations are suggested by the foregoing investigation. The main efforts must be directed towards prevention. As the condition is one of damage to tissues, once it has been established recovery can only take place after a prolonged process of regeneration.

1. The soldiers should practise massage on their feet before going to the trenches. There is some evidence to show that persistent rubbing of the feet beforehand has enabled the men to escape to a considerable extent the effects of exposure to cold.

2. A study of the cases shows that the symptoms begin to be felt, as a rule, after 48 hours' exposure. It is clear, therefore, that to shorten the time in the trenches would be the most essential measure of prevention.

3. While men who have been exposed to the conditions causing frost-bite without having been affected are resting between their turns of trench duty, they should persistently practise massage of their feet twice daily.

4. Careful attention should be given to anything which may constrict the blood-vessels. Constriction by boots and puttees should be avoided. Loose moleskin leggings would probably be found more suitable than puttees, as they would provide warmth without constriction. The advantage of leggings is that they provide the protection of an ample cushion of air and they drain more readily than compact wrappings, the existence of a non-conducting air cushion being thus re-established. The soldiers wear boots of a large size, but they have a practice of putting on two pairs of socks, and this probably tends to a certain amount of constriction. It was observed that the excoriations were situated on the outer and inner borders of the feet, and this fact suggests that some degree of constriction existed. It is significant that the parts most liable to trench frost-bite are the parts where under ordinary circumstances callosities and corns are most frequent. The question arises whether the upper leather of the boots could be made more pliable without diminishing the stability of the sole or of the boot generally. The soldiers very commonly cover their feet with oil and derive benefit from this. There may be several advantages in this. Among other effects it will act as a bad conductor of heat; it may minimise the effect of the wet; it may keep the leather of the boots more pliable and its application may be the occasion of a thorough massaging of the feet. In order to obtain the full effect the oil should be of high boiling-point and be used in considerable quantity; semi-solid oils such as vaseline would probably give the best results.

5. To maintain the circulation in the feet it would be helpful to increase the clothing of the legs. This might be done by using leggings reaching the thigh or by wearing two pairs of pants.

6. It is found that the onset of the symptoms was gradual as a rule. A soldier would at the end of a turn in the trench suffer from slight swelling. During the resting period he recovered, but on the next occasion the symptoms became so severe that he was disabled. Such cases should be investigated by the medical staff and tested before they are allowed to return to trench duty.

7. The period of commencing recovery. When the condition has become so severe as to disable the soldier he should not be allowed to walk or march more than is absolutely necessary when he leaves the trench. As soon as possible he should be conveyed to a resting-place. In many cases the records tell of disabled men having to walk back to billets some miles behind the line of the trenches. Wherever possible in such circumstances transport should be taken advantage of.

8. When the billets are reached measures should be directed to giving the feet as much rest as possible. The feet should not be warmed in any way that causes congestion, and the return of the normal circulation should be delayed rather than hastened.

We beg to express our thanks to the officers commanding and the members of the medical staff of the military hospitals in Edinburgh for the facilities afforded for the observations on the cases of frost-bite. We have also to thank the Medical Research Committee for meeting the expenses which have been incurred.

Dr. Levi Farndon, whose death occurred on August 27th, was born in June, 1846. He held, in addition to an American medical degree, the diplomas of L.S.A. Lond. and L.R.C.P. Irel., and in the earlier part of his medical career had an extensive practice in London. Later he removed to Maidenhead, where he carried on a general practice for 17 years with energy and generosity. Many of his humbler patients will long remember his kindness.

THE SITE OF ST. GEORGE'S HOSPITAL.—Dr. R. Salusbury Trevor, dean of St. George's Hospital Medical School, has now pointed out publicly that there is no change of site of the hospital in contemplation. There is now every reason to believe that the hospital will remain at Hyde Park Corner for many years to come, and the number of students will increase probably in consequence.

PHENOLISATION IN THE TREATMENT OF GAS GANGRENE.

BY DR. LOUIS MENCIÈRE,
MÉDECIN-CHEF DE L'HÔPITAL DE LA COMPASSION, RHEIMS.

Carbolic acid, followed by washing out with alcohol, asepticises the cavity of the wound and penetrates by "imbibition" a certain distance into the tissues which form its walls, and its action, unlike most antiseptic applications, is not limited to the surface. Its action is almost instantaneous, and next to amputation it is the most heroic means of combating a septic focus. This action continues for some hours after its application, but even so some colonies of B. perfringens may survive in some recesses. Logically one asks, "Why not repeat the application?" This may in some cases be justifiable, but we must consider the living tissue cells if we are to have as soon as possible a healthy granulating cavity. Therefore, after the energetic action of strong carbolic acid (90 per cent.) in order to prevent a fresh infection of the cavity, experience teaches me that the best means is the *embalmment* of the wound.[1] The technique, which is simple, is as follows:—

1. Long incisions, cleaning up the gangrenous cavity, removal of splinters and fragments of clothing, extraction of the projectile, usually a bullet or piece of shell.

2. Protect the neighbouring parts with cotton-wool and compresses, which should be as impermeable as possible, block any counter opening with a tampon, or defer making a counter incision until after phenolisation. Hold up the edges of the wound with Kocher's forceps in order to form a pit.

3. Fill the wound to the brim with a solution of crystals of pure carbolic acid 9 parts, alcohol 1 part, and with small tampons swab out all its recesses. Allow this solution to remain in contact with the wound for 1 to 1½ minutes. Avoid cauterisation of the surrounding skin. This requires some dexterity.

4. Remove all excess of carbolic acid with tampons and by gentle irrigation with strong alcohol to the amount of 3 or 4 litres (5 to 7 pints).[2]

5. Then at the same sitting embalm with 150 to 200 grammes (6–8 oz.) of my weak solution B, consisting of ether 1 litre, iodoform, guaiacol, eucalyptol, of each 10 grammes, balsam of Peru 30 grammes, and 90 per cent. alcohol 100 c.c.

The edges of the wound are again lifted up and the counter opening is temporarily closed, while this solution (B) is applied to all the anfractuosities of the wound through a cannula of small bore, which will only allow slow filling of the wound. The ether acts as a vehicle which carries the antiseptic substances into every corner. After this a permanent dressing is applied, consisting of strips of gauze soaked in solution A, ten times the strength of B. This dressing is to be renewed twice daily for seven days. Only exceptionally is a second phenolisation permissible. Twice daily the patient is to be examined. The phenolised wound, which appears whitish directly after the carbolic acid is applied, becomes once more red under the influence of the lavage with alcohol. Next day the wound looks more or less blackened by the acid, but it has not the look of putridity or gas gangrene; it is dry, clean, and, most important, it has lost the nauseous characteristic smell. This last fact I have verified in all my observations. From the fourth to the seventh day the wound becomes red and covered with healthy granulations by the tenth to fifteenth day. Watch the patient and keep always in armed expectation, ready to amputate if need arise. But do not amputate because the wound is dark coloured in the first three or four days; beware of the smell, of the production of gas, and invasion of parts above and below the wound.

Indications of necessity of amputation are given by the general or local conditions.

I.—*Cases in which the Surgeon must Amputate.*

General state.—Patient pale, suffering from dyspnœa, face drawn, complexion earthy, subicteric, conjunctivæ yellow, pulse and general condition bad. Amputate at once and suppress the focus of development of the poison.

Local state.—Extensive wound, tracts extending along the vessels and planes of fascia and involving a considerable length of the limb. Amputate.

The extent of invasion of the limb is such that it is possible to suppose that a phenolisation carried out at the level of the wound cannot reach the whole of the affected parts. Nevertheless, by "invasion" I do not mean a few superficial tracts, otherwise easy to phenolise by means of swabs.

Cases of special virulence will always defy conservative methods. That is why I advise careful surveillance of the patient if this method is employed.

I presume that every surgeon can see for himself if either from a local or a general point of view he has to do with a case of gangrene fulminating in its progress. In such a case there should be no hesitation. Amputate.

II.—*Cases in which to Phenolise.*

Gas gangrene developed at such a distance from the root of the limb as to allow of "retreat"—i.e., amputation. Extent of gangrene circumscribed already, or when, despite its extent, phenolisation into every recess can be carried out. Curette and phenolise for one and a half minutes if the thickness of the tissues permits. Fill the wound with phenol to the brim without hesitation; see that the liquid penetrates everywhere; wash out with alcohol and embalm as described above.

When for any reason amputation or disarticulation is impossible do not let the patient die without trying phenolisation. In such circumstances patients' lives have been saved.

From our observations prophylaxis may be derived which is fraught with great consequences because of the number of human lives which may be saved. We have a means capable of success where other conservative methods have failed, and that even when gas gangrene is already well developed.

In the presence of a wound suspected of infection I do not feel that I am justified in not phenolising and embalming the focus at once, considering that in a few hours perhaps the bacillus perfringens will be flourishing in it. By a suspected wound I do not mean every ragged and polluted wound, for in war time we have few others to treat. In such cases free opening up, antiseptic lavage, lavage with ether, and, best of all, embalming, have yielded me, as well as others, very good results from gentle methods, which are easy to apply and need no special precautions or experience and which risk no contusion of blood-vessels. A suspected wound contains a fragment of shell or

[1] THE LANCET, Feb. 6th, 1915, p. 269.

[2] I have discussed the mode of action of phenolisation and the question of intoxication, which need not be feared, in former publications.

a shrapnel bullet and pieces of clothing, and a vast intermuscular cavity, the appearance of which is already bad, bleeding little, and an odour ever so little fœtid emerges on the opening of a pocket, then phenolise.

Beware of those wounds of which the orifice of entrance or of exit presents a blackish mushroom-like protrusion, a sort of hernia composed half of blood-clot and half of muscular débris.

I cannot pretend to say what is the percentage result of the method as yet, but I affirm that four times phenolisation in my hands has stopped gas gangrene when it was in full course of evolution. It must not be forgotten that most of our antiseptics act only on the surface; phenolisation acts in the depths of the tissues, where the bacillus perfringens becomes harmful.

Finally, in the presence of an affection so formidable as gas gangrene the surgeon ought not to accept any conservative method without holding himself armed with the knife, ready to amputate if the existence of the patient is in danger. But one must keep cool, believing that phenolisation followed by embalmment will, in cases of declared gas gangrene and *a fortiori* as a prophylactic, save a number of lives without mutilation.

Rheims.

PLASTIC OPERATION FOR CLOSING CERTAIN UNHEALED GUNSHOT WOUNDS OF THE HEAD.

BY C. W. G. BRYAN, F.R.C.S. ENG.,

SURGICAL REGISTRAR, ST. MARY'S HOSPITAL, LONDON; TEMPORARY CAPTAIN, ROYAL ARMY MEDICAL CORPS.

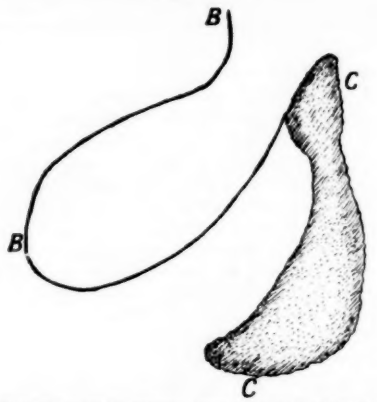
CERTAIN cases of gunshot wound of the head, where the skull and the dura mater are injured, result after operation in an unhealed wound with the brain matter presenting on the surface. In some instances this is due to the fact that access to the depressed fracture has been obtained by enlarging the gunshot wound, which it has not been advisable to close at the end of the operation owing to sepsis; or, again, though the operation has been performed by turning down a scalp flap, it has been necessary to leave the wound due to the missile open for drainage.

In such cases, if no severe infection is present, about 10 days after the operation the wound is healthy, although not aseptic, and there is a moderate amount of purulent discharge, while the brain matter has shrunk down and is seen exposed on the surface, surrounded by the edges of the skin, lightly adherent. Unless further operative measures are undertaken this stage persists for a long time, for there appears to be little or no tendency for healing to take place over the exposed brain. Even if the wound were to heal in some instances, the brain would be covered by a very thin scar.

To shorten the convalescence of these patients I have made a practice since March last of performing a small, and I believe perfectly safe, plastic operation, the results of which have been so satisfactory that I think a short description of the manœuvre may be justified. This operation is not undertaken until all fever is absent, the hernia cerebri has diminished, and the amount of purulent discharge is decreasing, a stage reached, as a rule, some 10 or 14 days after the original operation.

A flap of skin and subcutaneous tissue only, rather larger than the unhealed area to be covered in, is cut from the scalp, its actual position depending on the shape and site of the wound. (Fig. 1.) This flap and the flap of

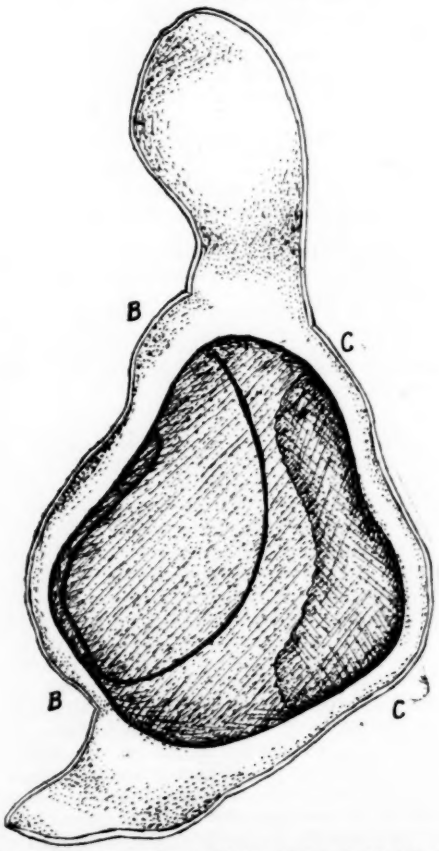
FIG. 1.



A flap of skin and subcutaneous tissue only, rather larger than the area to be covered, cut from scalp; shape depends on circumstances of wound.

skin between it and the original wound are dissected up from the underlying muscle, the edge B B is undercut, and the edge C C is freed and raised

FIG. 2.

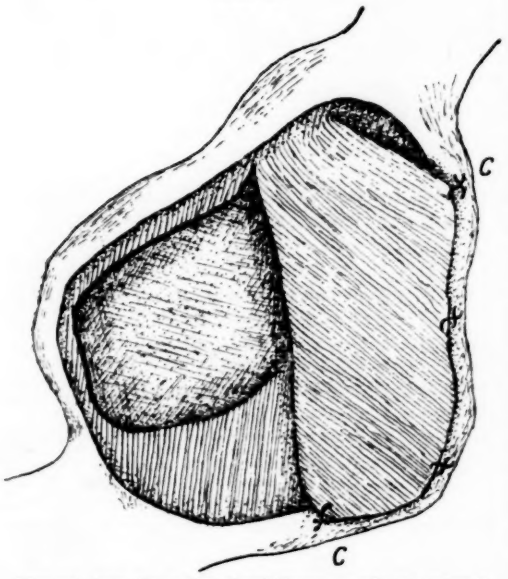


Flap of skin and subcutaneous tissue and flap of skin between it and the wound dissected up and the edge c c raised.

from the underlying brain matter. (Fig. 2.) From the occipito-frontalis aponeurosis thus exposed a flap is then cut sufficiently large to cover the

exposed brain matter, and its free edge is sutured by soft catgut to the under aspect of the edge C C, which is everted for the purpose. (Fig. 3.) The two skin flaps are then sewn over the wound so as to close it completely. The undercutting of the edge B B ensures that any tension there may be is

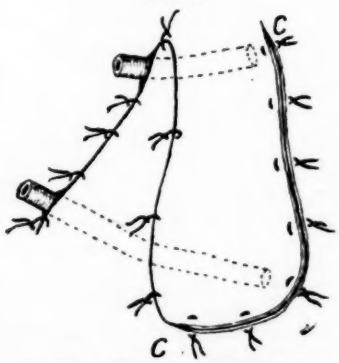
FIG. 3.



Flap cut from the occipito-frontalis aponeurosis and sutured to edge C C.

over bone and well away from the region of the brain matter that has been exposed. (Fig. 4.) It is advisable to close the line of suture C C with mattress stitches which evert the skin edges and allow the apposition of a definite raw area each side; this is the place where healing is slowest, owing to the pulsations of the underlying brain. Drainage is provided for by small rubber tubes passed one over, the other under the muscle flap and brought to the surface at the points shown in Fig. 4. These tubes are shortened on the second

FIG. 4.



Showing position of small drainage-tubes.

day and removed about the fourth day. For two or three days before the operation the wound is cleaned by the application of boric fomentations, the use of which is resumed on the day after the operation.

As an illustration I may quote the notes on the last case upon whom I have carried out this proceeding, which provided me with the particular diagrams that I have used to illustrate this short description.

The patient, aged 30, was wounded on June 16th by shrapnel which caused a septic wound, 2 in. long, running from before backwards in the left parietal region. On the 17th an operation was performed, the wound being prolonged at each end and sufficient bone being removed to make an opening 2½ in. wide and 3 in. long. There was a large wound of the dura mater and lacerated brain matter protruded. The operation was followed by a hernia cerebri presenting on the surface and reaching its maximum on the 21st. On the 27th the hernia cerebri had shrunk down almost to the level of the skin, and an area about 3 in. long and 1 in. across at its widest part was exposed on the surface. The wound looked healthy, only a moderate amount of purulent discharge being now present. On that day I carried out the operation which I have described above. On the 29th the drainage-tubes were removed. Except for a rise to 99·6° F. on the 29th the temperature remained normal after the operation. On July 4th some of the sutures were removed, the wound being healed except in three places; a small amount of pus was being discharged from the places where the drainage-tubes had been brought to the surface and from one spot on the line C C. On the 5th the remainder of the sutures were removed. On the 6th the hernia cerebri had diminished, so that the region of the wound was now flat. The patient was allowed to sit in the open air without a dressing. On the 11th the man was transferred to England, the wound being completely healed except for one place on the edge C C, where there was an area ½ in. long and about ¼ in. wide not yet covered with epithelium.

The condition which I have referred to is a type of wound in which it is important to obtain healing as soon as possible, not only to shorten convalescence, but also to prevent reinfection. Many of the large granulating wounds resulting from the treatment of gunshot injuries reach a stage at which it is possible and advisable to close them. Any procedure adopted with this object must ensure that acute sepsis is not present, that the wound is closed without tension, that no concealed cavity is produced, and that adequate drainage is provided. Given these conditions, it appears that the apposition of two raw surfaces, one or both granulating and infected, has a beneficial effect on the inflammatory process, diminishes discharge, and promotes repair.

British Expeditionary Force, France.

CROYDON INSURANCE COMMITTEE AND MEDICAL CARDS.—At the annual meeting of the Croydon Committee the subjects dealt with in the annual report laid before the committee included the working of the medical card system which came into operation on Jan. 12th, 1914. It was stated that the number of cards returned by the Post Office owing to inability to deliver them to their addressees amounted to 3800. Efforts were made with the coöperation of Approved Societies and medical men on the panels to trace these removals, with the result that in about 2600 cases the committee was able to issue fresh cards or to learn that the insured person had transferred himself to another area. Further efforts were being made to follow up the remainder. It was mentioned that the issue of medical cards had enabled the committee to rectify a very large number of inaccuracies in the particulars inserted in the index slips furnished by various Approved Societies. The new medical cards, of which in the early part of 1914 the committee had issued about 40,000, had added materially to the efficiency of administration, and had helped to make known to the insured the steps to be taken in order to secure medical benefit.

THE VALUE OF PROLONGED REST IN THE TREATMENT OF HEART DISEASE IN THE YOUNG.

FIVE YEARS' RESULTS OF A COTTAGE HOME FOR THE TREATMENT OF VALVULAR DISEASE IN BOYS.

BY GUY D. BARTON, M.B., B.C. CANTAB., M.R.C.S., L.R.C.P. LOND.

SUCH encouraging results have been obtained at a small cottage home in Weybridge for boys between 10–14 years of age with heart disease during the last five years that a brief account of the working of the home might be of interest.

The boys come to the home from the London hospitals—12 from St. Bartholomew's Hospital, 13 from Guy's Hospital, 1 from the Middlesex Hospital, 2 from St. Thomas's Hospital, and 1 from the Royal Free Hospital—the length of stay entirely depending on their condition and improvement. Slight cases stay one or two months before returning home; other cases, where the boys have arrived with dilated irregular hearts, stay a year or more, and then a situation in the country is found for them if possible, to prevent them returning to unsuitable London surroundings. It has been found that if the heart lesion has been brought on by chorea the cases do not do so well as those where valvular trouble due to acute rheumatism is being dealt with, and I attribute this to the impossibility of keeping the boy quiet enough with other boys playing around him. The cases where compensation has hopelessly broken down begin with a month in bed—sometimes two or three months. When the boy begins to get up he starts making wool mats, rugs, &c., which gives him an interest and keeps him employed. Later, when he can walk half a mile or so, he earns a little money by cleaning brass work at one of the private houses near by, which goes towards the upkeep of the home, and later still he goes out for the whole morning as boot-boy, cleans bicycles, &c. Then, if he likes private service, a permanent situation is found for him. The hopeless cases, of which Cases 3, 25, and 29 are examples, are kept sufficiently long to see whether anything can be done with them. If after two or three months' rest in the home they are obviously going down-hill they are sent back to the hospital, as the nursing facilities there are more suitable for this class of case.

Some of the boys (Cases 6, 7, 16) break down or have another attack of rheumatic fever, necessitating readmission. A further attack of fever cannot be avoided, but the object of the home is to prevent a boy such as Case 16 returning to unsuitable work by providing him, if possible, with work for which his heart is capable. The success in the majority of cases appears to be due more to prolonged rest, good food, and country air than anything else, digitalis and other heart drugs being occasionally required. But as each case is kept a long or short time entirely on its own merits, and a boy need never be sent out till he is quite ready to go, to have a fixed length of stay in the home would defeat its own objects, and it is felt that, though fewer cases can be dealt with, very much more satisfactory results are obtained by the present methods.

The small cost at which a home of this description can be run is best shown by the balance-sheet for the year 1913.

Balance Sheet of a Cottage Home for Boys for the Year 1913.

Receipts.

	£	s.	d.
Donations	89	3	0
Earnings of boys	12	4	6
Receipts from parents of boys	1	2	6
Sale of mats, &c.	1	10	10
	£104	0	10

Expenditure.

	£	s.	d.
Housekeeping	43	15	0
Salary (matron)	24	0	0
Rent cottage	22	2	0
Coal	5	0	0
Boys' fares, &c.	1	6	10
Medicine	1	19	10
	£98	3	8

Results of Treatment of Valvular Disease in Boys at a Cottage Home during a Period of Five Years (1910–14).

Case.	Age.	Length of stay in months.	Particulars of disease.	Remarks.
1	14	17	M.R.	At the end of his stay took up work in London and has kept well since.
2	13	11	A.R.	Went home at parents' wish. Not heard of lately.
3	13	2	M.R.[1]	Compensation continually broke down. Died 4 months after leaving home.
4	13	23½	A.M.R.	Apprenticed to picture-frame making. In May, 1915, was quite well, and joined Home Guard.
5	13½	2½	M.R.	Unsatisfactory character. Ran away home. Health broke down following year.
6	14	4½	M.R.	Returned to surgical instrument factory and kept quite well till another attack of rheumatic fever.
Readmitted.		10½	A.M.R.	Improved very much. Heart very irregular and dilated on admission. After 10 months' stay got very restless. Eventually ran away and joined the army. Well in 1914.
7	12	17½	M.R.	Made a very satisfactory house boy.
Readmitted		7	A.M.R.	Improved greatly. Went to a situation and has done very well.
8	16	2¼	M.R.	Slight case. Left the home quite well. Accepted for Royal Navy, but had another attack of rheumatic fever in Haslar Hospital. Not heard of since.
9	11	5	M.R.	Went back to London. Quite well when last heard of.
10	15	5	M.R.	Situation obtained for him. Has kept well since.
11	14	3	M.R.	Not very amenable to discipline. Compensation continually breaking down. Finally improved and worked for wholesale chemists.
12	14	4½	M.R.	Returned home.
13	12	3	C.;M.R.	Left the home preparatory to going abroad.
14	11	3	M.S.	Rough type of boy; improved very much and returned home.
15	12	3	M.R.;C.	Returned home.
16	16	4½	A.M.R.	Returned to London and took place as page-boy. Left place and returned to van work.
Readmitted.				Heart broke down. Admitted to Bart.'s March, 1914. Situation as caddy-boy obtained for him, where he kept well.
17	13½	5½	M.R.	Returned home.
18	15	6½	M.R.	Became restless as he improved and ran away home.
19	14½	10	M.R.	Took place as garden-boy while at the home, and later went away to a place as waiter. Turned into a very smart boy.
20	13	¾	P.	Returned home at parents' wish.
21	12	3	M.R.	Returned home.
22	16	2	A.R.	Improved. Emigrated to Canada.
23	13	3	M.S.	Returned home.
24	15	2	A.M.R	Improved considerably. Had a bad scoliosis and returned to London to attend hospital for this.
25	16	6	A.M.R	Hopeless case; heart continually breaking down. Returned to Bart.'s.
26	14	2	M.R.	Returned home at parents' wish.
27	14	3	M.R.	Did work as house-boy for a month before returning home.
28	11	1	M.R.	Slight case. Went home and to school.
29	13	3	A.M.R.	Hopeless case; heart continually breaking down. Returned to Guy's Hospital. Died May 27th, 1915.

[1] With adherent pericardium.

M.R. = mitral regurgitation; C. = chorea; M.S. = mitral stenosis; P. = pericarditis; A.R. = aortic regurgitation; A.M.R. = aortic and mitral regurgitation.

No fixed charge is demanded from the boys' parents, as in many cases this is impossible, but where they can afford a little, a shilling or two a week is sometimes paid. As the cottage cannot accommodate more than five boys at a time the number of cases that can be dealt with is naturally small, but to judge by the inquiries we have for vacancies from the few London hospitals we deal with it seems to the writer that a large amount of good is being done for a very small cost, and if this experience leads any others to try the same kind of cottage home for these cases they will, I feel sure, be very gratified with the results.

SUCCUS ALLII IN THE CONTROL OF SUPPURATION IN WOUNDS.

BY A. D. SERRELL COOKE, M.B., CH.B.EDIN.,
ASSISTANT PHYSICIAN TO THE TUBERCULIN DISPENSARY, CHELSEA; ASSISTANT MEDICAL OFFICER (TEMPORARY), PADDINGTON INFIRMARY, ETC.;

AND

V. GABRIEL, F.R.C.S. ENG., M.R.C.P. LOND.,
ASSISTANT MEDICAL OFFICER (TEMPORARY), PADDINGTON INFIRMARY.

IN view of the apparently strikingly successful results which we have recently obtained in controlling and checking suppuration by means of succus allii in all of the limited number (20) of suppurating wounds which we have treated at Paddington Infirmary, it has been urged by others that a short note be immediately published. It would have been better under ordinary circumstances to have waited and collected evidence over a sufficiently long period of time; but, as it is recognised that the subject of the treatment of suppurating wounds is now so important and urgent a matter, these short notes are published in the hope that others, who are now experimenting and who are much better placed than ourselves for carrying out an investigation into the treatment of infected gunshot wounds, may turn their attention to the possibilities suggested by the results so far achieved by us with garlic juice—succus allii sativi—and compare its action in controlling pus in wounds with that of other antiseptic substances.

With lotions prepared from succus allii and distilled water it has invariably been found, in our limited experience, that after washing out the wound twice daily, and at the same time establishing drainage, a noticeable improvement occurs within 24 hours, and a very marked and decided improvement within 48 hours. Not only has the purulent discharge become markedly diminished, but where there has been pain this has either been much relieved or has disappeared in the same period of time, while no injury to the tissues has been apparent.

It may perhaps be of interest to give the reason for the decision to employ succus allii in suppurating wounds. One of us (S. C.), following Minchin, had for some considerable time employed garlic juice in an inhalation for the treatment of active mixed infections in pulmonary tuberculosis with results which were often successful in overcoming mixed infection caused by the ordinary pyogenic organisms. From this it was argued that a lotion containing succus allii, if brought into direct contact with organisms within a wound, should inhibit bacterial growth and check pus formation. As previous experience had shown that a freshly prepared lotion of succus allii 1 part to distilled water 3 or 4 parts, when employed in tuberculous sinuses, did not injure tissues, it was decided to use lotions in the above strengths, washing out the wounds twice daily and maintaining where possible free drainage.

The first case, the details of which are given below, in which the lotion, succus allii 1 part and distilled water 4 parts, was tried was a case of empyema from which a large quantity of very offensive, greenish-yellow pus was evacuated after the resection of a rib. The subsequent discharge was copious and foul-smelling, but after 48 hours it was noticed that the purulent discharge was free from odour and rapidly diminishing in amount. This was regarded as extraordinary, and it was decided to try the effects of the garlic juice lotion in other cases. With regard to the antiseptic power of allyl sulphide, according to Martindale and Westcott in the Extra Pharmacopœia, 1915, the carbolic acid coefficient is approximately 2. Whereas it is seldom possible to use carbolic acid lotion in a greater strength than 1 in 40—that is, 2½ per cent.—the succus allii has been employed in a strength of 20 to 25 per cent. without apparent injury to the tissues. In one case where a lotion of 1 part to 2 parts of distilled water was used decided pain was caused, and a weaker solution was then employed. Subjoined are details of some of the cases treated.

CASE 1.—The patient, a female, 16 years of age, admitted on July 12th, 1915, had been operated upon 12 months previously for empyema on the right side of the chest. Scars of two operation wounds were found on the right side of the chest, and a fluctuating superficial abscess in the scar of the lower wound. On the afternoon of July 12th an exploratory puncture was made in the interspace above this, and pus was withdrawn. The patient was in a very feeble condition, but the temperature was normal. The fluctuating swelling was opened under chloroform and found to communicate with the pleural cavity. A large quantity of exceptionally foul-smelling, greenish-yellow pus was evacuated, and an additional piece of rib resected. To the exploring finger of the surgeon the lung felt soft and broken-down. A drainage-tube was inserted. By the evening there was a copious discharge of fœtid pus, and the pleural cavity was then washed out with a lotion containing succus allii 1 part and distilled water 4 parts. This washing out with the lotion was repeated twice on the 13th, when the odour was much less offensive. On the 14th the purulent discharge had markedly diminished, the odour was practically gone, and had entirely ceased by the 15th. On the 20th the wound looked clean and healthy, the discharge was still free from odour, and there was about an ounce of clean pus on the dressings twice daily. On August 8th the discharge, which appeared to be about an ounce daily, was thin and perfectly sweet, and the general appearance of the patient would not suggest illness.

CASE 2.—A female, 39 years of age, married, was operated upon on July 22nd for left-sided empyema by resection of rib, and a good deal of pus was evacuated. Since the operation the wound continued to discharge a large quantity of pus. A lotion of succus allii, 1 part to 5 parts, was exhibited on August 3rd, and on the following day—that is, within 24 hours—a marked diminution in the amount of pus was observed; the temperature dropped from 101° to 99° F., and the patient herself volunteered a statement as to an improvement in her general condition. Since using this method of washing the cavity out with the lotion of succus allii, 1 part to 5 parts, twice daily she improved, and has steadily maintained her improvement.

CASE 3.—The patient, a female, 44 years of age, was admitted on July 29th suffering from abscess of the prepatellar bursa of the left knee. Two incisions were made on each side of the left knee, a considerable amount of pus, about 10 ounces, was evacuated, two drainage-tubes were inserted, and fomentations applied. On the 30th the knee was very painful, and it was with difficulty that the wound could be syringed with peroxide of hydrogen. Thick sanious pus was exuding. Succus allii lotion, 1 part to 4 parts, was directed to be employed twice daily. On the 31st the wound

was much cleaner, and the discharge much thinner and less in quantity, while the pain had disappeared. On August 3rd only a thin sanious discharge, small in amount, was noticeable, and the drainage-tubes were removed. By the 6th the discharge had entirely ceased, and on the 8th a lotion of succus allii, 1 part to 9 parts, was employed once daily to prevent further suppuration.

CASE 4.—A female, 78 years of age, married, was operated upon on July 22nd for a huge suppurating hæmatoma of the upper part of the left thigh, and two pints of blood-stained pus were evacuated. The cavity was washed out twice daily with a solution of hydrogen peroxide. Two days later the anterior and inner wall of the abscess cavity sloughed out, leaving a huge cavity with pockets above and below, which discharged large quantities of offensive pus. During this period the patient complained of general malaise and much local pain; the temperature varied between 99° and 101° F., and the floor of the abscess cavity was covered by sloughs. On August 2nd the cavity was washed out with a solution of succus allii, 1 part to 5 parts, twice daily. Within 24 hours the purulent discharge was markedly reduced in quantity, the floor of the abscess cavity became cleaner, pain was noticeably less, and the temperature fell to normal. On the 5th, owing to the shortage of the drug, washing of the cavity with hydrogen peroxide was reverted to, with the result that the temperature went up to 99°, and the local condition ceased to maintain the improvement so noticeable with the treatment with succus allii. On the resumption of succus allii on August 8th the wound became cleaner within 24 hours and as it was previously.

CASE 5.—A female, 5 years of age, was operated upon on July 20th for acute mastoid abscess on the left side. Partial mastoidectomy was done, and the wound was treated with iodoform. The subsequent treatment of the sinus consisted in syringing out the cavity with solution of hydrogen peroxide, and having in it a wick of gauze for the purpose of draining. As the wound continued to discharge a good deal of pus and the floor of the sinus appeared unhealthy, hydrogen peroxide was replaced by succus allii, 1 part to 3 parts, on August 7th, with the result that the sinus was, after 48 hours, exuding only a few drops of pus and the walls were covered by healthy red granulations.

CASE 6.—A male, aged 1 year and 6 months, was admitted on August 2nd for suppurating wound of the scalp. The wound had been caused by a spade 12 days previously, and had been washed daily with antiseptics, and antiseptic foments applied for nine days prior to admission by a nurse under the supervision of the medical attendant. A suppurating wound of the size of a shilling, or rather less, a quarter of an inch deep, was found over the right vertex, the tissues surrounding the wound being also reddened. Succus allii, 1 part to 4 parts, was used twice daily to syringe out the wound, and boric compresses were applied. On the 3rd the wound was much cleaner, still more clean on the 4th, and since then there has been no pus. The inflamed area surrounding the wound had disappeared by August 4th, while the temperature of the child, which was 103° F. on admission, had become normal by the evening of August 3rd.

As the effects of the continuous use of succus allii on the tissues are not known to us, a weaker solution—succus allii 1 part and distilled water 9 parts—has been employed when suppuration has been definitely controlled and checked. It has been stated that succus allii deteriorates quickly, but with the addition of 1 to 2 per cent. of alcohol it would appear to be preserved at any rate for about a month or six weeks; and it has, therefore, been found advisable to prepare the lotion just prior to its use.

In conclusion, we would like to express our thanks to Dr. A. G. Stewart, medical superintendent of Paddington Infirmary, for affording us the opportunity of employing succus allii in the treatment of suppurating wounds; and, as the drug is not readily obtainable, to mention that our supply has been obtained through Messrs. J. P. Inch and Co., 178, Kennington Park-road, S.E.

THE STRENGTH OF PICRIC ACID AS AN ANTISEPTIC.

BY H. L. TIDY, M.D. OXON., M.R.C.P. LOND.,
TEMPORARY CAPTAIN, R.A.M.C., PATHOLOGIST TO THE BRITISH RED CROSS HOSPITAL, NETLEY.

Picric acid has been used very successfully for the sterilisation of skin before operation in strengths of 2 or 3 per cent. in alcohol. The following estimation of the Rideal-Walker carbolic acid coefficient was made at the request of Colonel Cuthbert Wallace, R.A.M.C.

The Rideal-Walker test affords a comparison of the bactericidal powers of different substances. The standard is a 1 per cent. solution of carbolic acid. For any given substance the strength of solution is found by experiment, which kills a culture of typhoid bacilli in the same time as the solution of carbolic acid. The inverse ratio of the strength of this solution to 1 per cent. gives the carbolic acid coefficient of the substance. Thus if a 0·2 per cent. solution of a substance x has the same bactericidal powers as a 1 per cent. solution of carbolic acid, then the carbolic acid coefficient of x is 5.

Technique.—The technique was followed as described in Hewlett's "Manual of Bacteriology." The solutions of picric acid and carbolic acid were prepared from crystals dissolved in sterile distilled water. The test culture was a 24 hours' broth culture of B. typhosus, incubated at 37° C. and filtered before use. The broth was prepared according to the formula in Hewlett's manual, and standardised to a reaction of + 10, Eyre's scale.

Results.—Table V. records a control experiment with lysol. The result agrees with published estimations, which give the coefficient variously between 1·7 and 2·5. Experiment I. (Table I.) shows

TABLE I.

+ = Growth of typhoid bacilli in subculture.
− = No growth of typhoid bacilli in subculture.

Substance used.	Dilution.	Time of exposure of culture to action of substance (in minutes).					
	%	2½	5	7½	10	12½	15
Picric acid.	1·0	−	−	−	−	−	−
,, ,,	0·5	−	−	−	−	−	−
,, ,,	0·25	−	−	−	−	−	−
Carbolic acid.	1·0	+	−	−	−	−	−
,, ,,	0·5	+	+	+	+	+	+

that a 0·25 per cent. solution of picric acid is stronger than the 1 per cent. solution of carbolic acid. Hence the Rideal-Walker coefficient of picric acid is greater than 4. In Experiment II. a 0·2 per

TABLE II.

Substance used.	Dilution.	Time of exposure of culture to action of substance (in minutes).					
	%	2	4	6	8	10	12
Picric acid.	0·2	+	+	−	−	−	−
,, ,,	0·1	+	+	+	+	+	+
,, ,,	0·05	+	+	+	+	+	+
Carbolic acid.	1·0	+	+	−	−	−	−

cent. solution of picric acid killed the typhoid bacilli in the same time as the standard solution. This shows that the required strength of picric acid is in the neighbourhood of a 0·2 per cent.

solution. In Experiment III. the typhoid bacilli were killed by solutions of picric acid of 0·16 and 0·17 per cent. in the same time as by the carbolic

TABLE III.

Substance used.	Dilution.	Time of exposure of culture to action of substance (in minutes).					
	%	2	4	6	8	10	12
Picric acid.	0·16	+	—	—	—	—	—
,, ,,	0·17	+	—	—	—	—	—
,, ,,	0·18	—	—	—	—	—	—
,, ,,	0·19	—	—	—	—	—	—
,, ,,	0·20	—	—	—	—	—	—
,, ,,	0·21	—	—	—	—	—	—
,, ,,	0·22	—	—	—	—	—	—
Carbolic acid.	1·0	+	—	—	—	—	—

acid solution. In Experiment IV. a 0·15 per cent. solution of picric acid killed the typhoid bacilli less rapidly than the standard solution, and a 0·18 per cent. solution killed them more rapidly. The mean of these two figures, 0·165 per cent., agrees with the result of Experiment III.

TABLE IV.

Substance used.	Dilution.	Time of exposure of culture to action of substance (in minutes).					
	%	2	4	6	8	10	12
Picric acid.	0·12	+	+	+	—	—	—
,, ,,	0·15	+	+	+	—	—	—
,, ,,	0·18	+	—	—	—	—	—
Carbolic acid.	1·0	+	+	—	—	—	—

TABLE V.

Substance used.	Dilution.	Time of exposure of culture to action of substance (in minutes).					
	%	2	4	6	8	10	12
Lysol.	0·2	+	+	+	+	+	+
,,	0·4	+	+	—	—	—	—
,,	0·6	—	—	—	—	—	—
Carbolic acid.	1·0	+	—	—	—	—	—

Hence it may be concluded that a 0·165 per cent. solution of picric acid has the same bactericidal powers towards the culture of typhoid bacteria as has the standard 1 per cent. solution of carbolic acid. Thus the Rideal-Walker carbolic acid co-efficient of picric acid is exactly 6.

Netley Abbey, Hants.

MEDICAL SERVICE IN THE HIGHLANDS.—The proposals of the Highlands and Islands Medical Service Board are creating widespread interest throughout the Highlands. A meeting of the members of the Inverness division of the British Medical Association was held in Inverness recently to discuss the various proposals under the draft scheme of the Board. A resolution was unanimously passed that owing to the anxiety felt amongst medical practitioners on the mainland of the county of Inverness as to the working of the proposals of the Highlands and Islands Medical Service Board and their bearing upon future medical practice, and the numerous difficulties in the way of clearly understanding the proposals which arose during the discussion, the Board be respectfully asked to send a representative to a meeting of medical men in Inverness at a date to be arranged by the Board, and that in the meantime the medical men of the county of Inverness should delay completing Form 2. The attendance at the meeting was not large on account of so many Highland doctors being away on military duty.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON ACUTE INFECTIOUS JAUNDICE.

BY SIR WILLIAM OSLER, BART., M.D., F.R.S.

AMONG the soldiers invalided from Egypt are cases of epidemic or acute infectious jaundice, a disease which requires further study. Outbreaks in this country are not uncommon in schools and villages. It is also a soldier's disease, prevailing in camps and barracks. The clinical features are those of catarrhal jaundice. In Europe and America fatal cases are rare, but in Egypt, particularly in Alexandria, the death-rate, as reported by Professor F. M. Sandwith, has ranged from 10 to 50 per cent. I have seen two groups of cases among the soldiers, four in one hospital and ten in another, all mild and convalescing. Those with whom I have spoken knew of no deaths, but there were severe cases on the transports, which have been distributed to other hospitals. I write this note to urge that careful bacteriological studies should be made. One fatal case which came under my care from a North Carolina outbreak had a widespread infection with the bacillus proteus, which was also present in two of three cases studied by Jaeger. Organisms of the colon group have also been found. In his "Diseases of Egypt" Professor Sandwith gives an excellent account of the disease as it appears in Alexandria, and Dr. W. Hunter has published a full description in the "System of Medicine" edited by Allbutt and Rolleston.

Mr. Davison of the Pathological Laboratory, Oxford, will be glad to make blood cultures and serological tests from severe cases for any of my colleagues who may not have access to laboratory facilities.

Oxford.

A CASE OF UMBILICAL HERNIA CONTAINING MECKEL'S DIVERTICULUM.

BY S. G. PAPADOPOULOS, M.B., B.S. LOND., M.R.C.S., L.R.C.P. LOND.,
RESIDENT MEDICAL OFFICER, MILLER HOSPITAL, GREENWICH-ROAD, S.E.

A PATIENT, aged 50, was admitted to the Miller Hospital with the following history. Two years ago, while he was lifting a box containing tin-plates and weighing (as he says) about one ton, he felt something in his abdomen giving way, and soon afterwards an umbilical and a right inguinal hernia developed. The patient is of big proportions and weighs about 20 st. After general anæsthesia the umbilical hernia was operated upon first. A good-sized flap of skin surrounding the umbilical knot was dissected up, after which the sac was defined, emptied, and opened. Its ligaturing gave considerable trouble; a very strong ligature of silk had to be used, which broke twice. Before the third attempt at ligature a floating piece of intestine protruded through the opening, which on closer examination proved to be a Meckel's diverticulum. It was 3 inches in length, patent and distended, and the size of the small intestine in diameter. At its distal end two small saccular dilatations (secondary diverticula) were noticed. The diverticulum was tied at its base, as an ordinary appendix, and the stump, after its removal, was invaginated through a longitudinal purse-string suture. The peritoneum then

was closed with strong silk and the rest of the wound closed in layers. The inguinal hernia was then treated likewise. The sac in both cases was of very big size. The patient, with the exception of some vomiting for the 48 hours following the operation, made an uninterrupted recovery.

The interest of the case lies in the facts: (1) That the umbilical hernia contained very probably the Meckel's diverticulum, which gave no signs of its presence and caused no trouble to the patient; (2) that although three operations were performed on him in one sitting his quick recovery was not affected; and (3) that the size of the patient and the weight he lifted are certainly out of the common.

My thanks are due to the surgeon, Mr. Hugh Davies, for allowing me to communicate this case.

Greenwich-road, S.E.

NOTE ON A RARE FORM OF INTUSSUSCEPTION.

BY IDA M. GUILLAUME, L.R.C.P. & S. EDIN., L.F.P.S. GLASG.,
SENIOR HOUSE SURGEON, CLAYTON HOSPITAL, WAKEFIELD.

A MALE patient, 63 years of age, was sent into Clayton Hospital, Wakefield, by Mr. W. Stanger, honorary surgeon to the hospital, and was admitted under Mr. G. W. Thomas, acting assistant surgeon to the hospital. The patient was complaining of severe abdominal pain, emphysema, and chronic bronchitis. The history was that pain all over the upper and middle part of the abdomen especially had started two days before and been allayed by morphia. Vomiting, of a bilious nature, had occurred once only during the afternoon before. He had had an enema that morning with a very small result and a normal stool the day before. Abdominal signs were mostly absent; there were slight distension and tenderness; the tongue was brown and dry. Diagnosis of intestinal obstruction was made chiefly on the severity of the pain, and immediate operation was performed under chloroform and oxygen.

On opening the abdomen free fluid was found and an intussusception high up in the jejunum, a few feet from the duodenum, about 9 inches long; while reducing this the ensheathing layer of bowel tore through. Two feet of bowel were removed, the contents of the upper end of the jejunum were drained off, and an end-to-end anastomosis was done. Before closing the abdomen a pint of saline solution was left in. Three inches above the commencement of the intussusception, attached to the internal wall of the bowel, close to the mesenteric border and partially filling the lumen, was found a polypus of about the size of a large walnut, which was reported later to be of a sarcomatous nature and was evidently the cause of the intussusception. The patient died next day.

Sir Frederick Treves in discussing intussusception says that only 4 per cent. of cases occur over 60 years of age, and only 8 per cent. are associated with a polypus, which, when present, is generally situated in the lower part of the ileum, and he only records one case (reported by Mr. C. B. Lockwood) where the polypus was *above* the intussusception. Moreover, the polypus, though the cause, was itself not involved in the intussusception, as would be expected.

I am indebted to Mr. Thomas for permission to publish this note.

Wakefield.

Reviews and Notices of Books.

Surgery of the Blood-vessels.

By J. SHELTON HORSLEY, M.D., F.A.C.S., Surgeon in charge of St. Elizabeth's Hospital, Richmond, Va. London: Henry Kimpton and Co. 1915. Pp. 304. Price 16*s.* net.

WITHIN the last 20 years the blood-vessels have come within the province of the surgeon. Previously, little more than ligature of a vessel was ever undertaken, for it was thought that any attempt to suture a wound of a blood-vessel or to perform an anastomosis would be inevitably accompanied by thrombosis. It was in 1897 that the first success was obtained in the anastomosis of a blood-vessel, when Murphy united a cut femoral artery. Since that time several surgeons, among whom must specially be mentioned Carrel, have done much to advance the surgery of the vascular system. Already several works have appeared describing the progress that has been made in this branch of surgery, but there is still room for another book on the subject, and in this volume Dr. Horsley has not only given a very readable account of the experimental and scientific aspects of the subject, but has also provided a full account of the practical application of the facts discovered by experiment to the treatment of injury and disease.

The technique of suturing arteries is very carefully described, so that any surgeon capable of minute work should be able to employ it. In all forms of blood-vessel surgery one of the most important points is the need for absolute asepsis, for nothing is so likely as sepsis to produce thrombosis. A very good account is given of the direct method of transfusion of blood by which the artery of the donor is directly connected with a vein of the recipient. This is undoubtedly the best of all methods of transfusion, though it requires more manipulative skill than other methods. We entirely agree with the author in laying stress on the importance of not infusing too much blood in chronic anæmias, while in acute hæmorrhages it is safe to bring up the hæmoglobin percentage almost to the normal.

In the chapter on the surgical treatment of pulmonary embolism the author mentions that of the 12 cases in which an operation was performed in Trendelenburg's clinic not one survived, and he concludes by saying, "The suddenness of the symptoms, the difficulty of the operation, the necessity for trained assistants, make it unlikely that such a procedure can be followed by success except under extraordinary conditions," and in this opinion we fully concur.

The sections dealing with aneurysm are somewhat less full than other parts of the book, but they represent on the whole present-day teaching; however, it must be acknowledged that the question of the best method of treatment of an aneurysm has not yet been settled.

The most novel chapter in the book is the last, for it deals with an operation devised by the author for remedying defects of the cheek. When a tumour has been removed from the cheek it is often difficult to close the opening; the author has employed a flap from the forehead, and with it he takes the anterior superficial temporal artery so that the flap is very fully supplied with blood. The method is certainly ingenious and deserves a trial. The book is adequately illustrated.

A Practical Handbook of Surgical After-treatment. By ALAN H. TODD, B Sc., M.S. Lond , F.R.C.S. Eng., Surgical Registrar and Tutor, Guy's Hospital. London: Edward Arnold. 1915. Pp. 256. Price 4*s.* 6*d.* net.

THE care of a patient after an operation is often of even more difficulty and importance than the operation itself, and yet the text-books of surgery generally devote very little attention to the after-treatment. Of late years a few works on this subject have appeared, but the continual progress of surgery requires that all the methods taught should be kept up to date, and therefore we welcome the appearance of this little work. The value of an efficient after-treatment is due partly to its effect on the comfort of the patient, for though some pain after an operation is generally inevitable, yet much may be done to diminish this suffering. But, further, even the success of many operations depends mainly on the after-treatment, as may be seen in most plastic operations. It is only experience which can say which is the best method in any individual case where some sign indicates the need for treatment after an operation, but this book will afford numerous useful hints which will go far to make up for personal experience. For instance, the author points out that a saline solution for transfusion should contain a slight quantity of calcium salts, and therefore tap-water is to be preferred to distilled water; moreover, he mentions that distilled water, unless it has been very recently distilled, is liable to be definitely harmful.

We quote this only as an example of the practical nature of the information contained in this volume, and the reader will find many other hints or "tips" which will prove very serviceable in a time of need.

LIBRARY TABLE.

St. Bartholomew's Hospital in Peace and War. The Rede Lecture, 1915. By NORMAN MOORE, M.D. Cantab. Cambridge: At the University Press. 1915. Pp. 56.—Dr. Norman Moore's historical writings are always worth reading, for there are few more capable than he of making the apparently dry bones of charters, rolls, and leases stand up an exceeding great army clothed with spirit and flesh. Mediæval human nature was sometimes very human, and these old documents show that our forefathers were in most ways much as we are ourselves. In the lecture now before us Dr. Moore gives a necessarily brief résumé of the hospital of St. Bartholomew and its surroundings throughout its history of close upon 800 years. Short as it is, the lecture contains a wonderful amount of information upon little-known points of history connected with the City and the hospital, as, for instance, p. 35, the origin of the name "Shoe-lane." During the wars of the Great Rebellion the hospital was, as now, full of wounded soldiers, who, not as now, "drank and quarrelled a great deal." Colonels and captains sat on many committees of the governors, and they do so still." The history of the hospital, as recorded in this little book, "tends," in Dr. Moore's own words, "to show how in a free country such as ours, where everything is not dominated by Government, an ancient institution like St. Bartholomew's Hospital, whether in peace or war, lives with the nation and is in touch with the national life in every period." The reading of this lecture makes us look forward all the more eagerly to the appearance of the great history of the hospital which Dr. Moore has had in hand for some years.

Text-book of Anatomy and Physiology for Training Schools and Other Educational Institutions. By ELIZABETH R. BUNDY, M.D., Member of the Medical Staff of the Woman's Hospital of Philadelphia, &c. Third edition, revised and enlarged. With a glossary and 233 illustrations, 44 of which are printed in colours. London: J. and A. Churchill. 1915. Pp. 408. Price 8*s.* 6*d.* net.—In reviewing a previous edition we called attention to a few of the errors present in this book. Some of these have been modified—it is impossible to say corrected—in this issue. Many errors still remain untouched by the revision, and a book which passes into a third edition with so many inaccuracies cannot be praised by any reviewer. Take, for example, a very few instances. The median nerve is given as the supply of the M. supinator (p. 290). The base of the fifth metacarpal bone is the sole insertion of the M. flexor carpi ulnaris (p. 105). The ulnar nerve is said to supply the M. flexor longus pollicis and the M. pronator quadratus (p. 107). The M. pectoralis major is stated to be inserted to the "greater tubercle" of the humerus (p. 103). The shaft of the humerus is said to have three borders and three surfaces, and then it is added "(like all long bones)" (p. 56). Many of the illustrations are still unacknowledged (e.g., Fig. 106). Several of the index lines are incorrectly named; in Fig. 103, for instance, the superior mesenteric vein is named "mesenteric artery" (p. 140). It must be possible to write an anatomy suited for "training schools and other educational institutions" in a manner that is sufficiently simple and yet accurate; but it is obvious that such a work has not been produced in this instance.

Collected Papers of the Mayo Clinic, Rochester, Minnesota. Edited by Mrs. M. H. MELLISH. Vol. VI. (1914). Philadelphia and London: W. B. Saunders Company. 1915. Pp. 814. Price 24*s.* net.—We have reviewed the preceding volumes of the collected papers from the Mayo Clinic, and we have been able to say that they serve a useful purpose in giving the surgical public an opportunity of seeing grouped together all the literary work coming from one centre, and that a clinic which is perhaps more thoroughly organised into one whole than any other clinic in the world. In the present volume the reader will find a large number of papers on many subjects, and in nearly every one of them there is something of interest to be found. Many of the papers deal with the subject of cancer, and the many problems in connexion with this disease are ably discussed. It is unnecessary to refer to individual papers, but it will suffice to say that there is something to interest every surgeon.

The Louse and its Relation to Disease (British Museum (Natural History) Economic Series, No. II). By BRUCE F. CUMMINGS. London. 1915. Pp. 16. Price 1*d.*—This pamphlet, issued by the British Museum, is timely and quite commendably brief. The title accurately sets forth its contents, which are practically limited to an account of the clothes louse and the head louse, their rôle in spreading disease, and the best means of coping with the mischief caused by their activity. A half-page introduction indicates the subjects dealt with and quotes Herodotus, Aristophanes, and the physician "Galien" (surely Galen or Galenus) as early contributors to the "literature" of the subject. In the body of the pamphlet there is a clear and illustrated account of the differences which distinguish the body or clothes louse (of which the name used to be pediculus vestimenti, but is now, according to

the author, P. humanus) from the head louse. It is mainly the former which is responsible for the transference of typhus, while both species spread several forms of relapsing fever. In this particular connexion we are glad to notice that Mr. Cummings mentions Professor Maxwell Lefroy as the authority who recommends a certain emulsion of soap and oil called by him "vermijelli," which has been extensively taken up during the war. Mr. Cummings has, we think, performed his task very well in so limited a space, and has the important qualification that he has specially studied these and other external parasites of birds and mammals. The pamphlet ends with a list of references to the papers and books written upon the subject, whether from the zoological or the preventive side.

MEDICINE AND THE LAW.

An Inquest at Battersea.

AT an inquest held by Dr. S. Ingleby Oddie at Battersea recently, Mr. E. C. Clanchy was censured by the jury after the coroner had summed up to them in a manner which suggested that that course would have his approval. The inquest was upon the body of a woman named Lewis, who admittedly had been recently attended by "a lady doctor" at her confinement. A nurse named Matthews was still in attendance upon her, and when the patient became ill, suffering from severe pains in her head, was sent to ask Mr. Clanchy to attend, the deceased being on his list as a patient under the Insurance Act. It was stated by Matthews that Mr. Clanchy at first declined to have anything to do with the case, but that she told him that the "lady doctor" had finished with it, and asked him to come immediately. Matthews admitted that in her interview with the medical man she was "saucy." Mr. Clanchy denied that he was asked to come at once, and said that he promised to come on the following morning, which, in fact, he did, and found the patient dead. The coroner asked: "Can you suggest why this perfectly respectable woman should invent such a story?" To this the answer was given: "She may have thought she asked me to come on Friday. When she found Mrs. Lewis dead she may have wanted to throw the blame on my shoulders." In comment it may be asked why a perfectly respectable medical practitioner should invent an untrue story, and it may be added that if the patients of medical men on the panel choose to make use of the services of other medical attendants, which they are quite at liberty to do, they cannot expect a medical man who knows nothing of their condition to realise the urgency of a sudden summons delivered by a "saucy" nurse. It is obvious that on an occasion in which evidence of a contradictory character is given by two witnesses, neither of whom can be corroborated, anything like censure is unjustifiable. Moreover, Mr. Clanchy said that he promised to attend next day, and the fact that he did so was to some extent corroboration of his evidence. In the case under comment evidence showed that death was due to apoplexy and could not have been averted, and a verdict ascribing it to "natural causes" was returned.

A Medical Man's Fees.

An action was recently brought to recover fees for medical attendance by Mr. C. C. Brodrick in the Tavistock county court, the facts, which are of not uncommon occurrence, rendering the case of some interest to medical men. The medical man was summoned to attend a young man named Cumming, who, as the result of an accident, was lying unconscious at the house of the defendant, Mr. G. D. Gale. Cumming, who was the half-brother of Mrs. Gale, was treated by the plaintiff, and after further treatment in hospital recovered and went away. He had been pressed to pay for the medical attendance rendered by the plaintiff, but had failed to do so. There was some dispute as to whether Mrs. Gale had promised to pay fees and had said that no expense must be spared, but any doubt as to this did not apparently affect the decision of the case. His Honour Judge Lush Wilson held that the mere sending for the plaintiff constituted a contract. The defendant had taken upon himself to employ someone, and the act of doing so brought about the relations of debtor and creditor. The man was lying unconscious in a man's house, and the owner of the house sent for a medical man who attended. He had not the slightest doubt that on these facts there was a legal contract as between the owner of the house and the medical man. He gave a verdict and judgment for the plaintiff, but added that possibly the defendant might have a remedy against the patient Cumming.

The Fate of the Illegitimate.

At an inquest at Ivybridge, in Devonshire, upon the body of an infant 10 months of age, after evidence of neglect and improper feeding had been given, the coroner told the jury that the mother could have called in the doctor, the district nurse, or friends when she saw her child wasting away, and that it was open to them to find a verdict of culpable neglect, which would be followed by a trial for manslaughter. The jury, however, found a verdict of death from improper feeding and neglect, but that the neglect was not culpable. As the child was the third illegitimate child which had been borne by the same woman, and as the other two had lived only for 24 hours and 6 months respectively, it will be seen that the coroner was justified in pointing out to her that she was not an ignorant girl, and that she had escaped a criminal charge through the leniency of the jury. Such leniency, no doubt, acts as an indirect encouragement of the murder and manslaughter of children, those that are illegitimate being more particularly affected.

Crime and Legal Insanity.

In a leading article in THE LANCET of August 14th comment was made upon the small proportion of cases in which persons charged with crimes, not being capital offences, are found "guilty but insane." In illustration of this, attention may be called to the case of a woman using the name of Gardner charged recently at Wingham, in Kent, with wearing the badge and uniform of a Red Cross nurse without authority, who was convicted as an ordinary criminal and sentenced to six months' hard labour. It was stated in evidence that the late Sir Thomas Clouston had expressed the opinion that she was insane, a danger to the community, and "a human being devoid of any sense of right and wrong." In spite of this, and apparently with no further inquiry, such as would be suggested by so eminent an authority's estimate of the woman's condition, a sentence was passed which, if carried out to its expiration without interference, may release this dangerous person in a few months' time, when it is practically certain that she will resume her irregular course of conduct. That release will so follow seems not improbable, for she has already been convicted seven times of theft or false pretences and three times for bigamy, having thus presumably afforded ample opportunity for the examination of her mental condition in prison. Incidentally, medical men should take warning, as she has been in the habit of getting engaged as a nurse, having no training whatever for such a position, and of then making use of her opportunities to steal. At one time she was employed to nurse a lady who was dying from cancer, and on another occasion she was entrusted with the care of a lady who was addicted to intoxicants. Gardner supplied the latter patient with drink, with the result that she had to be removed from her home in a state of delirium tremens, and then the supposed nurse set fire to the bedroom and stole what she could lay hands upon. The difficulty of obtaining nurses at the present time is likely to be realised by impostors, and this striking instance tends to show that sometimes, at all events, success is made easy for them by lack of inquiry.

THE DANGER OF EATING SHELL-FISH.—Dr. S. G. Vinter, the medical officer of health of the Torpoint urban district, in his annual report for 1914, states that in three of the four cases of enteric fever notified in the district during the year there was a history of eating cockles, and in the fourth case there was a doubtful history to the same effect. Cockles gathered at St. John's Creek had been examined and found to contain the bacillus coli, and therefore might become a source of infection. These cockles were sold principally in the Plymouth markets.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 11, 1915.

Science and Humanity.

PROFESSOR SCHUSTER, in the Presidential Address delivered before the British Association for the Advancement of Science at Manchester on Tuesday last, explained the common aims of science and humanity with great clearness and eloquence, and his words convey to no civilised class more than to doctors a pertinent teaching, for there are no scientific workers whose objects and aspirations are more closely associated in the attempt to benefit humanity. Much of Professor SCHUSTER's address rings very familiar in medical ears, for he has assimilated and simplified the teachings of the fathers of philosophy from whom medicine in common with all the different branches of scientific effort have drawn inspiration; and to some of us the quotations from that prince of mathematicians, JULES HENRI POINCARÉ, may not be new, for POINCARÉ has been more widely read by those who cannot claim to be experts in his line than often occurs with a mathematician. The essential message of Professor SCHUSTER's address appears to be that our conceptions of science are, generally speaking, too narrow. We are too often blind to the artistic and intellectual side of science. It is not necessarily utilitarian. The discovery of facts and of the principles underlying them is an unspeakable joy whether the discovery has commercial significance or not. The search for the beautiful and the achievement of the useful make up the common aims of science and humanity.

The British Association was founded rather to protect the interests of scientific men in their work for the advancement of natural philosophy than to associate the public with the measures being taken for that advance; and notable among those who desired to preserve the earlier and narrower scope of the society may be mentioned WILLIAM WHEWELL, the famous master of Trinity College, Cambridge. WHEWELL, it appeared, objected to the proceedings of the statistical section of the Association, when a discussion was inaugurated in that section upon the working of the Poor Laws, and many medical men would consider that WHEWELL was right from a purely scientific point of view, though he appears to have couched his protest in typically donnish language. "Who would propose," quotes Professor SCHUSTER from a letter of WHEWELL, "an ambulatory body composed partly of men of reputation and partly of a miscellaneous crowd to go round year by year from town to town, and at each place to discuss the most inflammatory and agitated questions of the day?" We can well see the point of WHEWELL'S question at the date that it was put, when we recall the dangerous political position caused in this country by the misery that followed the Napoleonic wars and by the economic changes due to the introduction of machinery. Indeed, the deep discontent of the masses at the time when QUEEN VICTORIA came to the throne, which had its violent expression in the Chartist movement, made WHEWELL'S distrust of anything like argument with democracy a comprehensible attitude. But we now know that the best way to remove discontent, to deal with popular grievances, and to obtain a *modus vivendi* for all sections of society is by the candid exposure of facts, by the sifting of them in open discussion, and by the employment in practical measures of what is gained by an all-round view of the situation. Only then can we obtain a definite idea of the comparative importance of the factors which have gone to the making of any situation. The common aims of science and humanity cannot be achieved save by the admission of as much humanity as possible into scientific discussion, so that the lessons of science can be accepted by an appreciative public; and this truism was recognised by the British Association, who rejected WHEWELL'S view which would have excluded the political questions of the day from the discussions of the Association. And, as Professor SCHUSTER reminds us, the most successful meetings of the Association have been held in manufacturing centres, proving that the interchange of benefits derived from the contact of theoretical and practical science with the affairs of everyday life is very real, the services rendered by pure science to organised industry of all sorts being no less important than the reinforcement of learning that follows on the consultations of academic thinkers with actual workers. Many leaders of the medical profession in far later times than those of WHEWELL have been too disposed to take somewhat the side of the Cambridge savant and to regard the participation of laymen in medical discussions as more or less an intrusion, and the medical profession has suffered both in breadth of view and in opportunities of advancement from this attitude. But with the extension of medical activity into all walks of human life in an intimate way that half a century ago would have seemed quite impossible, the coöperation of the public has been sought and welcomed by medicine, and now in many directions of social reform medical men would be the first to consider that no pronouncement could possibly be made by any body composed of themselves alone, though decisions in the absence of a medical voice might be manifestly absurd. Questions of vital importance to the public, but largely dependent for that importance upon their medical aspect, are not found only in relation to public health; they must occur in all deliberations upon

education, vital statistics, housing and town planning, water-supply, care of our fleets and armies, and expansion of our tropical dominions. Medical men are gradually becoming a voice in great national committees; they are no longer an isolated standing committee of themselves.

Professor SCHUSTER notices how the engagement of a whole nation in a great struggle, like the terrible war in which we are now engaged, suppresses small differences of opinion and produces a unanimity of national sentiment about great things which makes divergent opinions about small things appear trivial. In happy illustration of this point he showed how a contemplation of the cosmos discounts the importance of the American elections. We hope and we venture to expect that a capacity to look at matters from all sides and to exercise a little faith where we do not understand and a little toleration where we do not agree will abide with us after the war is over.

Medical Attendance at Night.

A LETTER which appeared recently in the *Oxford Times* described the distressing case of a father who in seeking medical aid for his daughter, suddenly taken ill at bedtime, visited five practitioners, all of whom declined to attend. Finally one of them was persuaded to come who only arrived an hour before the girl died. The letter concludes with the hope that something can be done to save other parents from the experience of the writer, with whom all will sincerely sympathise, and with the suggestion that "a doctor should be appointed for night work a week or so at a time."

With the facts of the particular case we are not concerned. It would be out of the question to criticise them upon information of so slender a character, and more particularly so as reference is made to the "panel doctor" of the parent, who was away, and to an alleged refusal on the part of his substitute to attend. This in itself implies nothing, as it is not stated that the patient was herself on the list of the "panel doctor," and in any case if it were provable that any failure of duty under the Insurance Act took place the matter would form a subject of inquiry for the Insurance Committee. There remains, however, the difficult question which constantly arises at inquests, and on other occasions, when it has been found impossible to secure the attendance of a medical practitioner in a case of serious illness at night. Incidents of this kind may happen with increased frequency in the circumstances in which we are now living, owing to the absence of medical men in the service of their country, with the consequent pressure of work thrown upon those still in civil life, and it will not be easy to put forward any remedy while war lasts. Both at home and abroad there will inevitably be suffering and death, with deep distress for relatives, due to the fact that a profession which has sometimes been described as overcrowded during days of peace has inevitably found itself short-handed in an unparalleled period of well-nigh universal war. When peace comes, however, there will no doubt be a period of reorganisation and reform in which many questions of medical service will have to be fully considered, for it is not likely that we shall revert, as it were automatically, to conditions which prevailed before the war. For one thing, medical practice under the Insurance Acts would in any case have afforded points for discussion and adjustment under conditions of peace and prosperity. In the future, when the aftermath of war has to be dealt with, such discussion and readjustment will be inevitable, and considerable change in the conditions of such practice must follow. Advocates of a State Medical Service will perhaps find when peace is restored a favourable opportunity for developing their proposals. With a State Medical Service provision would, no doubt, be made for attendance upon patients at night. As the matter stands at present, however, we have on the one side the patients whose needs are admitted and whose benefit is the medical profession's first concern, and on the other medical practitioners whose physical powers as human beings are limited. The members of the medical profession cannot work day and night without some intermission for the purpose of rest. It would be prejudicial to the interests of the patients whom a practitioner must attend in the day time that he should have spent a sleepless night preceded by a hard day's work.

The letter in the *Oxford Times* contains, however, a suggestion, or the germ of one. It may be possible by mutual arrangement between the medical men of a particular locality to provide for attendance in the case of night calls where the practitioner first summoned is unable to respond. Beyond this it is difficult to go without interference with the freedom of action of individuals, a freedom which they are jealous to guard from infringement. Those who entered upon a State service would occupy a different situation. They would undertake it knowing its liabilities. In any case, however, we would ask all to regard with suspicion uninvestigated stories of refusal to attend at night when they contain allegations of callousness against the medical practitioner. Inquiry will show in a very great majority of such cases either that the medical man could not respond to the call without sacrificing the interests of other patients or that he had no reason to believe that any serious result would ensue from his refusal. After all, if we put the matter on the lowest ground of self-interest, a man who lives by his practice has everything to lose and nothing to gain by refusing a patient's request, with the obvious risk of being held up to public obloquy by so doing.

Annotations.

"Ne quid nimis."

THE CATALOGUE OF THE LIBRARY OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To those engaged in medical research the virtual completion of the catalogue of the library of the Royal College of Surgeons of England should prove of more than ordinary interest. The comparative leisure afforded by the war, which has necessarily drawn away readers, has enabled the librarian and his staff to bring to a practical conclusion a labour of many years. Originally suggested by the great John Hunter himself, the literary collections of the College remained for long uncatalogued and almost inaccessible. Even as lately as the days of Dr. John Chatto, who was librarian from 1853 to 1887, the books were many of them heaped on the library floor, and in that situation proved of little service for reference or research. A good linguist and an industrious cataloguer of the old and not too precise school, Chatto did little more than sketch the first draft of a card-list of authors. His predecessor, the learned Dr. Robert Willis, whose term of office lasted from 1828 to 1853, had certainly ascertained the contents of the library, and as early as 1831 had issued a catalogue. But though this was printed in 1843, and was added to by supplements up to 1860, Willis was not any more than his successor imbued with the modern idea that a collection of books should be indexed on the dictionary principle—that is, both under author and subject—if it is to prove of practical utility either to the learned or the worker. The first to undertake the organisation of the library and the work of cataloguing it on the modern index principle was James Blake Bailey, who will be remembered by many between the years 1887–97. Entering with some lightness of heart upon his task he died after recording upon cards the titles and subjects of only a fraction of the small works in the library (some 20 cases). Of the serials or sets, however, he issued a printed list. These now number some 300 and fill more than 192 cases of the 350 cases in the library. During the last 18 years the work of the catalogue has been practically carried to a completion by Mr. Victor Plarr, who succeeded Bailey as the librarian of the College. Some 160,000 entries have been made upon cards, and the library, which numbers well over 67,000 volumes, may be said to have been indexed. Not only are the ancient and modern European languages profusely represented in this great collection, but even Chinese appears in the shape of a translation of Jenner on vaccination. The use of a card-index is self-evident. In the first place, it is a record of what a library possesses; in the next, it is valuable as a collection of "literatures" or bibliographies. All the works on gunshot wounds, for instance, will be found recorded together from the earliest times of warfare with firearms. And the same may be said of most of the diseases known to nosology, and of every department of anatomy, besides biology, chemistry, zoology, anthropology, and so forth. The most perfect library index of medical works is that of the library of the Surgeon-General of the United States Army at Washington. And this has been the guide to Mr. Plarr and the cataloguers at the English College. The American catalogue is produced in the most pleasing conditions, in the full blaze, so to speak, of Government favour and popular admiration. The staff employed upon it is large, and thus it has been possible to enter into great detail. Titles of articles in transactions are catalogued in the American work which it has not been possible to record in the English catalogue. Indeed, the American catalogue must for ever remain the guide to the bibliography of medical periodical literature. But the catalogue of the library of the Royal College of Surgeons of England contains a great many titles of rare works, while the MSS., Hunterian, Listerian, and others, which are peculiar to the English collection alone, may be said to render it unique.

CEREBRAL MORPHOLOGY IN ITS RELATION TO CEREBRAL LOCALISATION.

AT the recent celebration of the thirtieth anniversary of the Philadelphia Neurological Society, Dr. Charles K. Mills, the President, who may be regarded as the doyen of neurology in the United States, devoted his address to a review of the advances made by experimental physiology and clinico-pathology in the important domain of cerebral localisation. It has long been held that the cerebral fissures, or at least some of them, are the boundaries of functional areas, but with the exception of the fissure of Rolando and the Sylvian fissure, and perhaps one or more of less size and extent, it cannot be shown that the fissures do so act. Much more than the mere surface morphology of the brain must be taken into consideration in any attempt to determine the significance of fissural markings. Dr. Mills made special reference to the work of Dr. Ariens Kappers, of Amsterdam, who has conducted a series of investigations into this subject. Dr. Kappers has called attention to the so-called law of Baillarger which is that the volumes of similar bodies are to each other as the cubes of their diameters, while their surfaces are to each other as the squares of their diameters, and has shown that in animals of increasing size and importance the cortex must of necessity be infolded in order to obtain that cortical area which by the above-mentioned law is essential. The layers or strata of cells constituting the cortex also increase equally with the outside layer or surface. It is erroneous to suppose that the position of the fissures is determined by vascular relations; in the case of the cerebellum the main fissures and main vessels run across each other. Dr. Mills concludes that originally the fissures of the cerebrum may have corresponded to the limits of functional zones, but this more or less primitive character is eventually effaced as the result of specialisation of function and of development. Another subject to which Dr. Mills directs attention is that of neuro-biotaxis, a term which has been used to signify the process of tropism whereby various cellular groups, endowed with special functions, are localised in special areas. Very briefly, it may be stated that when the animal series from the reptilia to man is systematically examined, corresponding cranial motor nuclei (to take but one instance) are found to undergo a series of displacements as the result of the varying sensory stimuli exerted on these groups of motor cells. They move, in different animals, dorsally, ventrally, headwards or tailwards, as the case may be, in response to the changing stimuli essential

to the physiological processes which are characteristic of the particular animal concerned. In other words, motor areas have taken their position and form in close correlation with those sensory centres from which they are mainly stimulated. Perhaps the most important question of the moment in regard to this whole subject is that of the relation between the varieties of cortical functional activity and the variations in the anatomical cell layers of the cortex. In spite of many differences of opinion, this conclusion commands general approval—viz., that there is a distribution of specific function among cells of different morphological character, different localisation, and different importance. To give one or two illustrations. It seems fairly certain that the fourth, or inner granular, layer of the cortex subserves a sensory function. It is believed generally that the large cells of Betz, in the fifth layer in the motor area, are purely motor in function. Dr. Shaw Bolton, in particular, has adduced valuable evidence of relations between cyto-architecturic structure and psycho-physiological function. In other parts than the cortex, moreover, analogous results are being obtained. In the vagus nucleus in the medulla, for instance, the cells from which come fibres supplying non-striped muscle in certain viscera are structurally different and can readily be distinguished from those cells in which arise the fibres for the heart muscle. In fact, after alluding to recent researches of Dr. Edward F. Malone, Dr. Mills goes so far as to quote with approval the contention of that investigator, that "the histological character of a nerve cell is an indication of its function. Differences in connexion with portions of the organism which differ merely in spatial relations do not involve a difference in the character of the nerve cells; for instance, arm and leg muscles, flexors and extensors, are all innervated by the same type of cell. ..... Differences in cell activity are indicated not only in the nervous system: but in all portions of the entire organism by a definite type of cell character." Dr. Mills observes with truth that while physiological centres in the brain are sufficiently defined to enable the neurologist to help his friend the surgeon to the performance of operations, even the neurologist of largest experience and acquisitions does not know the function of any single part of the human brain in its entirety until he has a thorough knowledge of all the connexions of that part. Any so-called centre has always a complex of functions in relation to it. Dr. Mills concludes his interesting review by eulogistic references to the work of the English master, Hughlings Jackson, who, "more clearly than any one else, had a true vision of the inner meaning of the idea of localisation in the cerebrum and, indeed, in all parts of the nervous system." According to Hughlings Jackson the different parts of the body are represented in the different levels of the nervous system in more and more complex combinations the higher one proceeds in the system. This fundamental conception may be said now to command the assent of all neurologists, and it serves to indicate the limited sense in which we may speak of individual "centres" in the cerebral cortex. In any given centre some part is represented "first and most," but the links with other centres are so complex, and the individual centre is so complex, that other parts of the body are inevitably represented, in some degree, in each.

HERNIA OF THE STOMACH THROUGH THE DIAPHRAGM IN A CHILD.

Dr. W. J. S. Bythell records in the *British Journal of Children's Diseases* for August a case of hernia of the stomach through the diaphragm in a male child aged 9. The history consisted of persistent vomiting for six months, the condition gradually getting worse. At no time was there severe abdominal pain. The child looked poorly and was extremely thin. The abdomen was dull on the right side from the costal margin downwards, and tympanitic on the left. The right rectus muscle was distinctly prominent. For the first 17 days after admission to hospital the boy vomited nearly every day, usually profusely. A diagnosis was made of pyloric obstruction. An X ray examination was made. The bismuth passed to the right of the middle line instead of to the left. The outline of the stomach was not that of a normally shaped stomach simply transposed to the right, but more like that of the upper sac of an hour-glass stomach. There was delayed emptying; nothing had passed through the pylorus at the end of 75 minutes. Twenty-four hours later all the bismuth was in the large intestine, which was normal in shape and position. A second examination the following day, five hours after a bismuth meal, showed the greater part of the bismuth again on the right side of the middle line, whilst a small portion was situated in the ileum. A suggestion of diaphragmatic hernia of the stomach was offered, and three days later an operation was performed by Mr. J. Howson Ray. The epigastrium was found to be occupied by the colon; only a small piece of the stomach could be seen very far back under the diaphragm. It was then found that the major part of the stomach had herniated through the œsophageal opening. Other abdominal organs were normal. The stomach was brought down and stitched to the anterior abdominal wall by four or five silk sutures, and the abdominal wound closed. For the next 16 days the boy did well; there was no vomiting, and he put on weight. For the next 17 days, however, there was again profuse and daily vomiting. The X rays showed that the stomach had again passed back through the diaphragm, and this was confirmed at the second operation. This time a gastrostomy was done, and the subsequent history seems to indicate that a cure has been attained.

UNILATERAL PARENCHYMATOUS DEGENERATION OF THE LIVER.

IN 1913 Dr. W. F. Wassink[1] observed a curious difference in the two halves of the liver of a patient dying on the eighth day with appendicular abscess and generalised peritonitis. On section, the right half was pale and yellowish, the left half dark reddish-brown. A sharp line of demarcation separated the two. The right half looked cloudy; it was firmer in consistency, its cut surface stood up above that of the left half. Its structure was less readily seen than that of the left half, partly because the intralobular veins were less prominent, partly because the tissue was in a state of parenchymatous degeneration. During the next 12 months he collected 10 more cases of the same sort at Amsterdam. Of his 11 instances, 5 were cases of peritonitis, 2 of enteritis in infants, 2 of left portal thrombosis, and 2 of pyloric cancer

[1] Nederl. Tijdschrift voor Geneeskunde, Amsterdam, 1915, i., 2145.

dying respectively three and six days after gastro-enterostomy. Examined microscopically, the region of the line of demarcation, so clearly seen in these livers, gave evidence that confirmed the macroscopic appearances described above, with minor differences in some of the examples. His points are admirably illustrated by six photographic reproductions. In sections stained with hæmatin and eosin the normal structure of the liver was much more apparent in the dark left half than in the lighter-coloured right half of the liver; while in sections stained for fat with Sudan III. the right half was usually much richer in fat than the left. The cells of the right half stained less well and their nuclei were less apparent, and the blood capillaries were mostly empty; in the left or darker half of the liver the cells were smaller, the nuclei better stained, and the capillaries and small veins were filled with blood. In the two instances of thrombosis of the main left branch of the portal vein there was no cloudy swelling in the right half, but considerable atrophy of the liver cells and hyperæmia were found in the left half of the organ. In one other case a twig of the main left branch of the portal vein was thrombosed, and in the area supplied by it the same dark colour and cellular atrophy were to be seen. Dr. Wassink notes that the line of demarcation between the two halves ran up the right lobe of the liver, parallel with the falciform ligament and two or three finger-breadths from it. He concludes that there are two varieties of unilateral degeneration in the liver, the first dependent on cloudy swelling in the right half of the organ, the second on thrombosis of the main left branch of the portal vein—a variety long recognised by pathologists. He believes that the first is produced by the flow of poisonous or toxic blood through the main right branch of the portal vein, and not through the main left branch. He assumes, as has often been assumed before by other authors (mainly French) whom he quotes, that the streams of blood contributed to the portal vein by its various main tributaries mix together but little as they flow along the portal vein itself. The result is that the right half of the liver receives the blood from the superior mesenteric vein, speaking generally, while the left half is supplied by the inferior mesenteric, splenic, right gastro-epiploic, and pyloric veins. Hence toxic substances brought to the liver from the small intestine, appendix, and ascending colon will be distributed preferentially to the right half of the liver; poisons from the rest of the large intestine, the spleen, and the stomach will be carried direct to the left half. Analogous conclusions have been drawn, as Dr. Wassink points out, with regard to the distribution of glycogen, amœbic abscesses, abscesses due to bacterial infections, and secondary deposits of malignant disease in the two halves of the liver. Naturally the separation of the blood streams of various origin in the portal vein is neither absolute nor uniform under all conditions, so that the distinction between the infections or intoxications of the two halves of the liver must not be too closely drawn. For example, Pincherlé and also Dénigès have produced necrosis of the liver, in the left half only, by placing arsenic in the stomach after closure of the pylorus. Silvestri (1905) found that only the left lobe of the rabbit's liver was stained by the injection of gentian violet into its spleen; injection of the dye into the superior mesenteric vein caused staining mainly in the right lobe. Dr. Wassink made experiments to illustrate these points by the injection of suspensions of Indian ink into the abdominal veins of narcotised animals. The arrangement of the tributaries to the portal vein is much the same in the dog as it is in man, he says; and in five of his six experiments on dogs the ink was distributed in the liver exactly as theory demanded, being carried only to the right half of that organ when the superior mesenteric or cæcal veins were injected, to the left half when the injection was made into the splenic vein. His experiments on anæsthetised cats and rabbits were less uniformly successful, largely, he thinks, for mechanical reasons.

THE SUDDEN TURNING GREY OF THE HAIR.

THE sudden turning grey of the hair under the influence of great emotion is a phenomenon so remarkable that it has always aroused curiosity. The well-known historical instances, such as the case of Marie Antoinette, who is said to have become grey in the night before her execution, are open to some doubt, but several well-authenticated cases have been published by medical observers. At a recent meeting of the Société Médicale des Hôpitaux of Paris M. Lebar reported the following case. A soldier, aged 23 years, was in a trench in Argonne which was blown up by a mine. He was projected into the air and fell, and was covered by a mass of earth, from which he succeeded in extricating himself. The detonation was such that he immediately became deaf. This was attributed to double hæmorrhagic labyrinthitis by M. Cousteaud, who subsequently examined him. The deflagration of the powder produced superficial burns of the face, and there were several bruises on the head, which were greatest on the left side. He was taken to the English hospital at Arc-en-Barrois, where on the following day he noticed, to his surprise, tufts of white hair on the left side of the head. These formed four "islets" in the left fronto-parieto-occipital region separated from one another by normal hairs. The loss of colour was complete from the roots to the ends of the hairs and the longest hairs were just as white as the shortest. There was not a brown hair amidst them. The grey hairs were solidly implanted and could be pulled out only by strong traction. The bulbar swelling of the hair was equally decolourised. After the accident the patient suffered from incessant twitching of the left eyelids. The rest of the hair of the head was dark brown and there was not a white hair in the beard or moustache. The patient was an intelligent man, and the truth of his story was confirmed by the fact that his hair was described in his "livret militaire" as "marron foncé." The mechanism of sudden loss of colour of the hair is not well understood. It might be suggested that in this case it was due to bleaching by gases generated by the explosion, but this was negatived by the fact that the intracutaneous parts of the hair were decolourised like the rest. The studies of Metchnikoff on the whitening of the hair due to age throw light on the question. According to him, when a hair begins to whiten there appear in the cortex round or oval cells with prolongations which gradually come into relation with the cells containing the pigment granules and absorb them. These "pigmentophages," as he calls them, then descend towards the root of the hair to scatter in the dermis, of which they are, according to him, the pigmentary cells. The

pigmentophages, which originate in the medulla of the hair, disappear completely when the decolouration of the hair is achieved. This theory explains a slow and progressive decolouration of the hair of senility, and also applies to the rapid loss of colour now under consideration. This rapid mobilisation of the medullary cells appears to be provoked by a nervous disturbance. The place of whitening seems to be determined by the points on the scalp which have been the seat of injury. In the case reported above it was the left side of the head and face which was most injured by the explosion and the fall of earth, the labyrinthine lesions were more marked on this side, and the twitching of the eyelids was confined to this side. It was solely on the left side that the hairs were whitened. This influence of local causes is illustrated by cases which have been recorded of partial canities on parts submitted to pressure.

POST-GRADUATE STUDY.

POST-GRADUATE study is divided into three main divisions—the general study of professional subjects (including the special study of some branch), the study of State medicine, and the study of tropical medicine. The following article indicates the facilities for post-graduate study during the coming year, but there is a great deal of dislocation at various teaching centres on account of the war, and in some cases it may be found impossible to carry out the arrangements. In some institutions original research has been entirely suspended owing to the absence of the staff on naval or military duty.

LONDON.

The Hospitals of the Seamen's Society.—In connexion with these hospitals there are two post-graduate schools—viz., (*a*) the London School of Tropical Medicine; and (*b*) the London School of Clinical Medicine.

(*a*) *The London School of Tropical Medicine.*—The school buildings, laboratories, museum, library, &c., are within the grounds of the Branch Hospital, Royal Victoria and Albert Dock (Station, Connaught-road, Great Eastern Railway). Opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the service or going abroad. In the hospitals of the society are to be found cases of tropical diseases such as may be met with in actual practice in the tropics. The School has recently been greatly enlarged. A new laboratory, capable of accommodating 60 students and equipped in the very latest manner, has been added, and the old laboratories have been subdivided into special laboratories, preparation rooms, director's room, and incubation rooms, &c. The resident accommodation for students has also been increased, and it is hoped that there is now sufficient accommodation for all who desire to live at the School. There are three courses in the year, each lasting three months, beginning on Oct. 1st, Jan. 15th, and May 1st respectively. The laboratory, museum, library, &c., are open daily, and clinical instruction is given daily in the wards of the hospital. The curriculum of the course is so arranged as to equip students for the sixth alternative subject for the M.D. (Tropical Medicine) of the University of London, the D.T.M & H. of the University of Cambridge, and the D.T.M. Eng. of the London Conjoint Board. Classes are arranged for advanced Helminthology, Protozoology, and Entomology. The lecturers in the School are: Sir P. Manson, F.R.S., Dr. C. W. Daniels, Dr. G. C. Low, Dr. L. Westenra Sambon, Dr. J. M. H. Macleod, Professor R. Tanner Hewlett, Mr. James Cantlie, Colonel J. J. Pratt, Mr. E. Treacher Collins, Dr. F. M. Sandwith, Mr. K. W. Goadby, Dr. H. Williams, Professor W. J. Simpson, Colonel A. Alcock, C.I.E., F.R.S., Dr. R. T. Leiper, Dr. J. G. Thomson, Dr. B. H. Wedd, and Dr. P. Cockin. The Director is Mr. H. B. G. Newham. Dean, Sir F. Lovell. Certificates are granted after examination to those who complete a full course. Students must be qualified or in the fifth year of their medical studies. Prizes: the Hon. Edward John Stanley Memorial Fund, £50, the Wandsworth Scholarship, £370, and the Duncan Medal. Syllabus and full particulars can be had from the Secretary, Mr. P. J. Michelli, C.M.G., Seamen's Hospital, Greenwich, S.E.

(*b*) *The London School of Clinical Medicine* (for qualified practitioners only).—Owing to the absence of a large proportion of the staff on various war duties no attempt at the teaching of clinical subjects will be made in the coming session (October–May). Operative Surgery Classes will be held as usual. The lecture rooms, pathological laboratories (several), museum, and operative surgery class rooms are in the Dreadnought Hospital at Greenwich, and the whole hospital of 250 beds with its out-patient departments is open to students from 10 A.M. till 5.30 P.M. Medical, Surgical, and Special Department In-patient Clinics are held every afternoon except Saturday by the senior members of the staff, and operations are performed daily. In normal times two sessions are held yearly, one from October to February (five months), the other from April to July (four months), but the teaching is so arranged that students may join at any time. Every variety of disease may be studied at this hospital, at the dispensaries, and at the affiliated hospitals. Arrangements have been entered into with the Royal Waterloo Hospital for the reception of graduates who desire instruction in Diseases of Women and Children; with the Bethlem Royal Hospital for those who require tuition in Mental Diseases. These hospitals are situated on the south side of the river, are directly linked to the Dreadnought Hospital by both railway and tramway, and are affiliated to the London School of Clinical Medicine. Arrangements have also been made whereby certain members of the staff of the Miller General Hospital for South-East London have joined the list of extra-mural teachers, and will place their clinical material at the disposal of the students. The certificates of the School are recognised by the Admiralty, the War Office, the India Office, the Conjoint Examining Board of the Colleges of Physicians and Surgeons (for Operative Surgery), the Colonial Service, and the University of London (for the higher degrees). The supply of material affords exceptional facilities for practical instruction in Operative Surgery on the cadaver and in Pathology. The hospital also offers a wide field for the study of Venereal Diseases, and there is a special department with open-air wards for the treatment of Tuberculosis.

The teaching staff consists of: Sir Dyce Duckworth, Bart., Dr. Frederick Taylor, Sir John Rose Bradford, K.C.M.G., F.R.S., Professor R. Tanner Hewlett, Dr. Guthrie Rankin, Dr. S. Russell Wells, Mr. William Turner, Mr. Lawrie H. McGavin, Mr. E. Rock Carling, Mr. C. C. Choyce, Mr. L. Vernon Cargill, Sir Malcolm Morris, K.C.V.O., Mr. Richard Lake, Dr. Gordon Holmes, Colonel Collis Barry, Dr. C. E. Zundel, Dr. H. B. Carlill, Dr. H. R. Prentice, Mr. P. P. Cole, Mr. C. Rowntree, Mr. E. G. Stanley, Mr. R. Bickerton, Dr. Henry McCormac, Mr. G. N. Biggs, Dr. Probyn-Williams, Dr. E. W. Gandy, and Dr. W. E. Robinson.

The extra-mural lecturers are: Dr. James Taylor, Dr. W. H. B. Stoddart, Professor W. J. R. Simpson, C.M.G., Mr. James Cantlie, Dr. Herbert Williamson, Mr. Herbert S. Pendlebury, Mr. Ivor Back, Dr. Alexander Haig, Dr. R. O. Moon, Dr. Charles O. Hawthorne, Dr. Thomas D. Lister, Dr. Harold Pritchard, Dr. A. S. Woodwark, Mr. Keogh Murphy, Mr. W. H. McMullen, Mr. W. Ashdowne, Mr. J. Cole Marshall, Dr. J. D. Barris, and Mr. Victor Bonney.

The Syllabus and other particulars of the School can be obtained on application to the Secretary, Mr. P. J. Michelli, C.M.G., Seamen's Hospital, Greenwich, S.E.

West London Post-Graduate College, West London Hospital.—The West London Post-Graduate College was started in 1895, and three years later its basis was enlarged by the provision for the post-graduates of lecture-, reading-, writing-, and class-rooms, &c., while owing to the continued growth of the college these were transferred in 1901 to a building especially constructed for the purpose. Over 3000 post-graduates have been enrolled since its establishment, the yearly entry being now about 220. The hospital, which contains 160 beds, is in the main Hammersmith-road, about

three miles from Hyde Park Corner, and very accessible by omnibus, tram, or train. The physicians and surgeons attend daily at 2.30 P.M. Post-graduates accompany the staff and the junior staff on their visits to the wards. Instruction is given in the out-patient department daily at 2.15 P.M. by the assistant physicians and assistant surgeons. The out-patient department has recently been enlarged, and there is ample accommodation for post-graduates to see and to examine the patients in all the special departments of the hospital. Clinical assistants are appointed from among the post-graduates to the Medical and Surgical out-patients and to the Special Departments. The fee for a clinical assistantship to non-members is £3 3*s.* for three months, which includes membership of the college on the days on which the clinical assistant attends. Practical classes, limited in number, for instruction in special subjects, as well as in medicine and surgery generally, are held as required. Operations are performed daily at 2 P.M. Post-graduates are allowed to stand close to the table and can see the operations perfectly. The surgeons often avail themselves of the assistance of post-graduates at operations. Instruction is given in the administration of anæsthetics by the anæsthetists on the operating days, and post-graduates are allowed to adminster anæsthetics under their superintendence. Post-mortem examinations are performed at 2 P.M., and demonstrations on recent pathological specimens are given on Mondays at 12 noon during each session in the pathological laboratory. Demonstrations are given each week on Practical Medicine on Monday, Tuesday, Thursday, and Friday mornings. Practical lectures and demonstrations are given each morning and evening (except Saturdays) during the session. Included in this course are lectures by outside specialists on Mental Diseases and on Public Health, and in connexion with the former instruction is also given in certain asylums. The college is licensed for the teaching of operative surgery. The fee is £5 5*s.* each member in a class of four. The practice of the hospital is well adapted to the needs of medical officers of the Royal Navy and officers of the Royal Army Medical Corps, Indian Medical Service, and Colonial Service who have obtained leave for further professional study, and the certificate of attendance at the college during such leave is recognised by the Admiralty and other authorities. The college is recognised by the University of London for hospital practice before the M.D. degree and by the Royal College of Surgeons for the necessary work before the Fellowship examination. The pathological laboratory has recently been completely reorganised and placed in the hands of the pathologist, Dr. Elworthy, who attends there every day and gives instruction in Bacteriology and Microscopy. A special class meets on three mornings a week from 10 to 1, and post-graduates joining the class can work in the laboratory at other times under the guidance of the pathologist. A class meets 12 times and commences at the beginning of each month. The fee for this class in Bacteriology and Microscopy is £5 5*s.* The fee for the hospital practice, including all ordinary demonstrations and lectures, is £1 1*s.* for one week, £3 3*s.* for one month, £6 6*s.* for three months, £10 10*s.* for six months, £15 15*s.* for one year, and £30 for a life ticket; all fees to be paid in advance. A practitioner who cannot attend the whole course may attend any ten lectures or demonstrations during the session for a fee of £1 1*s.* A vacation class is held each year in August, the fee being £3 3*s.* for the course of one month, including hospital practice. The fee for a three months' course of instruction in the administration of anæsthetics, including a special class, is £5 5*s.*, or for one month £2 2*s.* A ticket for any of the above courses will be issued at any date. Arrangements can be made for gentlemen working for higher university examinations to be coached. All communications should be addressed to the Dean, Mr. Donald Armour, Post-Graduate College, or to Mr. Bishop Harman, Vice-Dean, West London Hospital, Hammersmith, W.

North-East London Post-Graduate College.—This post-graduate school is established in connexion with the Prince of Wales's General Hospital, Tottenham, N., which is recognised by the University of London as a place of post-graduate study for the M.D. and M.S. degrees, by the Admiralty and the India Office for purposes of study leave, and by the University of Cambridge for the D.P.H. diploma in respect of bacteriology. Facilities are there afforded to qualified medical practitioners for taking part in the work of an active general hospital of 125 beds and for attending demonstrations in various branches of medicine, surgery, and gynæcology, with opportunities for clinical instruction in Diseases of the Eye, Ear, Throat, Nose, Skin, and Fevers, Psychological Medicine, the Administration of Anæsthetics, Radiography, and Dentistry. Subject to the alteration arising out of the war cliniques, lectures and demonstrations will be given by members of the teaching staff in the lecture-room, in the wards, in the various out-patient departments, and in certain affiliated institutions. Operations are performed on every afternoon of the week except Saturday. Special limited classes are arranged in Modern Methods of the Study and Treatment of Diseases of the Lungs and Heart, Gynæcology, Diseases of the Throat, Nose, and Ear, Diagnosis of Diseases of the Nervous System, Ophthalmoscopy and Refraction, Diseases of the Skin, Abdominal Surgery, Radiography, Bacteriology, Clinical Pathology, Vaccine Therapy, and Medical Electricity. The fee for a three months' course of study, which may be begun at any time, in any single department, is 1 guinea. A fee of 3 guineas admits to the whole practice of the hospital for a similar term (one month 1 guinea), and a perpetual ticket for the practice of the hospital may be obtained on payment of a fee of 10 guineas. A certificate, signed by the staff, may be obtained at the end of three months' hospital attendance. A pathological museum and a pathological laboratory for original research are available. A reading- and a writing-room, containing a reference and lending library, is provided, and tea may be obtained. The hospital is connected with the Telephone Exchange (No. 23, Tottenham).

The lecturers are as follows:—In General Medicine: Dr. R. Murray Leslie, Dr. G. P. Chappel, Dr. A. J. Whiting, Dr. A. G. Auld, and Dr. T. R. Whipham. In General Surgery: Mr. H. W. Carson, Mr. J. Howell Evans, and Mr. E. Gillespie. In Gynæcology: Dr. Arthur Giles and Dr. J. Bright Banister. In Diseases of the Eye: Mr. R. Philip Brooks and Mr. E. A. Dorrell. In Diseases of the Ear, Throat, and Nose: Mr. H. D. Gillies. In Diseases of the Skin: Dr. H. W. Barber. In Fevers (at the North-Eastern Fever Hospital, St. Anne's-road): Dr. Frederic Thomson. In Psychological Medicine (at the Colney Hatch Asylum): Dr. S. E. Elgee. In Tropical Medicine: Mr. James Cantlie. In Radiography and Medical Electricity: Dr. Metcalfe. In the Administration of Anæsthetics: Dr. Hadfield and Dr. Shannon. In Vaccine Therapy and Bacteriology: Mr. Benians.

There will be no formal opening lecture, but the full work of the school, subject to the limitation arising out of the exigencies of the war, will begin at the commencement of October.

Further information may be obtained from the Dean.

Royal Hospital for Diseases of the Chest, City-road, E.C.—This hospital, which has lately undergone extensive reorganisation, provides an excellent field for research and study in diseases of the chest, more especially in tuberculosis, in its various departments. The departments in which study can be pursued comprise the In-patient, Out-patient, Röntgen Ray, Cardiological, Pathological and Bacteriological, Ear, Nose, and Throat, and Dental Departments. An extensive department for the Prevention of Consumption (Tuberculosis Dispensary) has been established. A splendid opportunity thus presents itself for medical practitioners and students who desire to obtain an intimate knowledge of tuberculosis. The Bacteriological and Pathological Research Laboratories, under the new director, Dr. Carnegie Dickson, should provide excellent opportunities for acquiring a knowledge of bacteriological methods, and also a field for research for those who wish to pursue such studies. The Cardiological Department, which has recently been established, has been equipped with all the latest apparatus for the investigation of diseases of the heart. In connexion with the Röntgen Ray Department there are two radiologists, who attend the hospital four days weekly. Attached to the hospital is a Medical School for Instruction in Diseases of the Chest, more especially Tuberculosis, at which courses of instruction are given from time to time. There is also a Tuberculosis School for Nurses, where regular theoretical and thoroughly practical courses of instruction are given, for which a certificate is granted. The fees for attending the clinical practice of the hospital are as follows: One month, 1 guinea; three months, 3 guineas; six months, 5 guineas; perpetual ticket, 6 guineas. Owing

to the engagement of several of the staff on war duties no course of lectures has been arranged for the autumn session. Any further information will be gladly given by the Dean, Dr. Barty King.

Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—For the various classes of instruction in Ophthalmology held at this hospital application should be made to the Dean. Classes of instruction will be held during the Winter Session and are open to both men and women students. The course will include: The Use of the Ophthalmoscope, Errors of Refraction and Muscular Anomalies, Medical Ophthalmology, External Diseases of the Eye, Anatomy of the Eye, Operative Surgery, Pathology of the Eye, Bacteriology of the Eye, X Ray Instruction, and Clinical Lectures. The post of Clinical Assistant at the hospital is open to men and women students, and a composition fee of £5 5*s*. entitles students to a perpetual ticket, and £3 3*s*. to three months' hospital practice. Either fee will admit students to the first four classes.

Western Ophthalmic Hospital, 153-5, Marylebone-road, and 3-4, Circus-street, N.W.—At this hospital qualified medical practitioners are eligible to become students of the practice of ophthalmology on payment of a fee of £1 1*s*. for a period of three months or £2 2*s*. for one year. Out-patients are seen on Mondays, Tuesdays, Thursdays, and Fridays from 1.30 to 3.30 P.M., and on Wednesdays and Saturdays from 9 to 10 A.M. On Fridays the hours are also from 5 to 6 P.M.

Hospital for Sick Children, Great Ormond-street, W.C., and *Queen's Hospital for Children*, Hackney-road, E.—The special courses of instruction usually held at these hospitals have been abandoned on account of the war.

PROVINCIAL.

Birmingham.—At the University of Birmingham special courses for post-graduates have not yet been instituted, except in the subject of Advanced Bacteriology (January to March) and Clinical Pathology and Bacteriology (April to June) and a course of Veterinary Pathology and Bacteriology for Veterinary Practitioners (October to December), but the various departments of the University are open to graduates who can attend any of the systematic courses on payment of a fee. Graduates may also work in the laboratories under the supervision of the professors for a small fee to cover the incidental expenses. Applications for information should be made to the Dean. All classes at the University and hospitals are open to men and women.

Bristol.—Post-graduate instruction for those desiring to take M.D. degrees, for applicants for tuberculosis officerships, and for other general purposes, is provided in the Faculty of Medicine of the University of Bristol. For details, apply to the Dean of the Faculty of Medicine, University of Bristol. It is hoped to resume the usual post-graduate instruction after the war.

Cambridge.—Long vacation courses are held at Cambridge during the month of July and the first three weeks in August. This year the course included lectures and demonstrations on general and special pathology by Professor G. Sims Woodhead and Mr. T. S. P. Strangeways, on bacteriology for medical students by Dr. Louis Cobbett, an advanced course on bacteriology for students of sanitary science by Dr. G. S. Graham Smith, a course in pharmacology by Professor J. B. Bradbury, Dr. F. Ransom, and Dr. D. V. Cow, courses of lectures in medicine, clinical medicine, and physical diagnosis by Professor Sir Clifford Allbutt, Dr. E. Lloyd James, and Dr. J. Aldren Wright, and lectures in surgery, surgical anatomy, and bandaging, &c., by Dr. H. B. Roderick. The pathological and pharmacological laboratories are opened to advanced students and graduates. Similar advanced courses in pathology and therapeutics are arranged for in the Lent, Easter, and Michaelmas terms for senior medical students and qualified medical men, and in the Lent term in bacteriology for students of sanitary science. During the war medical students who have passed both parts of the Second M.B. Examination may, as members of the O.T.C., be admitted to the practice of the 1st Eastern General Hospital, R.A.M.C. (T.F.), where they act as probationary dressers and clerks to the surgeons and physicians of the R.A.M.C. (T.F.). Applications for information should be made to Mr. E. E. Stubbings, Pathological Laboratory, Museums, Downing-street, Cambridge.

Leeds.—The Anatomical, Physiological, and Pathological Laboratories at the University of Leeds are at the disposal of qualified medical men for research or for routine work at specially arranged fees, and though there is no definite post-graduate course at the General Infirmary, the work of this large teaching institution is very freely accessible to qualified medical men at reduced fees. It offers a wide field for clinical study, having special departments for the treatment of diseases of women, for diseases of the eye, ear, nose and throat, skin and nutritional diseases of children. There are also facilities for acquiring a knowledge of the uses of electricity and of radiography in diagnosis and treatment. The General Infirmary offers a perpetual ticket to practitioners for £10 10*s*, or in two separate payments of £5 10*s*. At the Public Dispensary, North-street, 35,000 medical and surgical cases are treated annually, partly as out-patients and partly at their homes; the Hospital for Women, Little Woodhouse-street, has 53 beds devoted to gynæcology, obstetrics, and diseases associated with pregnancy and labour; the Leeds Maternity Hospital, 42, Hyde-terrace, has 33 beds; and the Leeds City Fever and Small-pox Hospitals are an important group of hospitals where all the infectious cases of the city are treated. The West Riding Lunatic Asylum, Wakefield, accommodates 2023 patients, and offers unusual advantages to those who desire to make themselves conversant with the treatment and management of the insane.

Liverpool.—At the University of Liverpool the department of Bio-chemistry is devoted chiefly to post-graduate teaching and research work upon chemistry in relationship to biology and medicine. The laboratory possesses a main room designed specially for research students in bio-chemistry. In this room there is ample accommodation for ten workers, each with independent working space. Special advanced courses in bacteriology are given in connexion with both the Medical and Veterinary Schools during the winter and summer terms, and special classes are arranged for candidates for the Diplomas in Public Health, Ophthalmology, and Veterinary Hygiene, and for the degree of Master of Hygiene. This department is in charge of Professor J. M. Beattie. Instruction may be obtained at the Johnston Laboratory and also at the farm station of the Incorporated Institute of Comparative Pathology on the methods of manufacture and testing of the various curative and preventive vaccines and sera used in medical and veterinary practice. In the department of Public Health a course of 41 lectures and demonstrations on the diagnosis, treatment, and administrative control of pulmonary tuberculosis will be given. The course has been specially designed to meet the requirements of those seeking appointments as tuberculosis officers. It has also been adapted to meet the needs of those general practitioners who wish to become familiar with recent advances in medicine with regard to tuberculosis. One of the most important post-graduate departments of the University is the Tropical School. Here there are always a large number of students either carrying on research work under the direction of one of its three professors, or studying for the Diploma of Tropical Medicine of the Liverpool University or of some other examining body. Post-graduate courses are also given in surgical and applied anatomy, operative surgery, ophthalmology, surgical diseases of children, skin and throat diseases, by the several lecturers appointed for those special courses of instruction. All post-graduate classes at the University are open to persons of either sex.

Manchester.—The plan adopted a few years ago at the University of Manchester of having special courses of lectures on medicine and surgery for qualified medical men has since that time been considerably modified. Classes are now held and lectures given on various special subjects, as, e.g., diseases of the heart, diseases of the respiratory organs, of the kidney, the pathology of the skin, neurology, and so on, and the same obtains as to surgical matters. These lectures are designed to meet the wants of senior students and practitioners. During the past summer post-graduate clinical demonstrations have been given twice a week at the Royal Infirmary by members of the staff (see the Students' number of THE LANCET, August 28th), and it is expected that a series of demonstrations will be arranged for next summer. Classes for senior students and post-graduates are also held at the Ancoats Hospital. These classes are held every week on Thursday at 4.30 P.M. during the winter and spring. The titles of the subjects of the

lectures or demonstrations are posted up in the hospital. Special demonstrations are given in the Electrocardiographic Department every Friday at 4.30 P.M. The staff of the hospital comprises: Consulting Physicians: Dr. F. Craven Moore and Dr. C. H. Melland. Consulting Surgeons: Mr. P. Tytler and Mr. W. Yeats. Physicians: Dr. E. B. Leech, Dr. D. E. Core, and Dr. C. E. Lea. Surgeons: Mr. W. R. Douglas, Mr. John Morley, and Mr. Harry Platt. Pathologist: Dr. Arnold Renshaw. Radiologist: Dr. W. J. S. Bythell. Dental Surgeon: Mr. E. A. T. Green. The practice of this hospital is free to students when accompanying the honorary staff. Regular post-graduate lectures are given during the winter and spring and are regularly advertised. The hospital possesses special departments for Neurology, Orthopædic Surgery, and Cardiology, the latter department having a complete electrocardiographic installation. There are other good opportunities for post-graduate study at the Manchester special hospitals for diseases of the eye, throat, ear, and skin, &c., but no special demonstrations are given. Special facilities are given for research in human and vertebrate embryology and morphology, and more especially for research in the comparative anatomy of the brain and anthropology. In the Physiological Department there is a special laboratory for research in experimental physiology. In the Helen Swindells Research Laboratory, where researches on cancer are carried on, there are special facilities for research work in cancer and allied subjects. The work is carried on in connexion with the Christie Hospital. Facilities are also provided for research in the several branches of pathology and pharmacology. The Public Health Department, under the direction of Professor S. Delépine, is largely attended by medical men, as are also the lectures given in the University and the Hygiene course by Dr. E. J. Sidebotham. Facilities are also given for the pursuit of research work in the public health laboratories, and in this department the dates of post-graduate courses in pathology and bacteriology are announced in the laboratory and in the medical journals. There is no difficulty in Manchester in the way of any practitioner who wants to have his recollections revived or his knowledge enlarged and brought up to the present standard in accomplishing his wish. Facilities for research and post-graduate work are offered to women on the same terms as men.

Newcastle-upon-Tyne.—At the University of Durham College of Medicine courses of instruction are given in chemical and physical laboratory work and lectures are delivered on comparative pathology and practical bacteriology for the Diploma in Public Health and the degree of Bachelor in Hygiene. All courses are open to women students and graduates.

Sheffield.—At the University of Sheffield post-graduate courses, open to men and women, are held annually during the winter months. These courses are specially arranged for practitioners, and include lectures on special subjects, laboratory courses, and clinical work, both general and special. A separate laboratory is reserved in the pathology department for post-graduate research workers, the use of which and of all apparatus is free. Periods of hospital practice may be taken out by registered practitioners at a small fee.

SCOTLAND.

Edinburgh and *Glasgow.*—Owing to the organising work of the hospital staffs in connexion with the war, all the post-graduate syllabuses have been cancelled.

Aberdeen.—Although there is no special provision at Aberdeen for post-graduate study such as exists in London, still there are some facilities for doing work of this nature at the University. There are fully equipped laboratories in anatomy, anthropometry, bacteriology, botany, chemistry, pharmacology, physics, physiology, public health, and zoology. Graduates or others desiring to engage in special study or research may be admitted by the Senatus to prosecute such study or research in any of the laboratories in accordance with certain provisions. Research students are exempted from payment of laboratory fees, but are required to matriculate each year, paying the ordinary matriculation fee (£1 1*s.* for winter and summer; 10*s.* 6*d.* for summer). Forms of application for admission as research students may be had from the Secretary of the Senatus. The fees are £3 3*s.* for six hours per week in winter or nine hours per week in summer, 10*s.* 6*d.* and 7*s.* being charged for every extra hour per week in winter and summer respectively. The fee for the Public Health Laboratory for six months is £6 6*s.*, and for the Bacteriological Laboratory for three months is £4 4*s.*, £3 3*s.* and £1 11*s.* 6*d.* being respectively charged for a half course or any less time. At the Royal Lunatic Asylum, accommodating above 700 patients (fees £2 2*s.* for three months), arrangements are made for extra teaching in the higher departments of medical psychology and cerebral pathology for graduates who desire it or wish to obtain the certificate of the Medico-Psychological Association of Great Britain and Ireland. Clinical work may be done at the following places:—(General Hospital): Aberdeen Royal Infirmary (accommodating 200 patients; perpetual ticket £10, or first year £5 10*s.* and second year £5, thereafter free); Sick Children's Hospital (75 patients; Hospital ticket £1 1*s.*; Class fee, £1 1*s.*); City (Fever) Hospital (100 beds; £1 1*s.* for three months); General Dispensary and Lying-in and Vaccine Institution (10,000 out-patients per annum; a fee of £3 3*s.* for the general practice of the Institution, a fee of £1 1*s.* for the certificate of Vaccination, and a fee of £3 3*s.* for the Maternity Practice); and Ophthalmic Institution (16,000 patients per annum; fee £2 2*s.*). During the summer session (April to June) special classes, each costing £2 2*s.*, are held at the Royal Infirmary, the subjects being Diseases of the Skin, Medical Electricity, Dental Surgery, Anæsthetics, Ophthalmology, Gynæcology, and Diseases of Ear, Nose, and Throat. Lectures on Diseases of the Ear and Throat are also given at the Dispensary. All these facilities for post-graduate study are open to medical practitioners generally.

IRELAND.

Dublin.—Trinity College and the Royal College of Surgeons each usually make arrangements for a course of post-graduate instruction in the year, but on account of the war no courses have been arranged for the present year.

Belfast.—At the Queen's University of Belfast a course in Clinical Pathology, consisting chiefly in practical instruction, has been given hitherto during the summer session, and, should a sufficient number desire to attend, a post-graduate course of practical work in the application of methods of chemical physiology to clinical investigation is also held open to practitioners. A course in Clinical Pathology or Bacteriology is given to medical practitioners, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in this department for the public health committee of the Belfast corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, and the diagnosis of cases of infectious diseases. Subject to the number of students presenting themselves, arrangements are made for the necessary practical instruction (1) in the chemical laboratories; (2) in the pathological and bacteriological laboratories; and (3) for outdoor sanitary work under the medical officer of health of Belfast. These courses have been approved by the Privy Council in connexion with the degree of M.D. in State Medicine in the University of London. The certificates of these courses are also accepted for the Diploma in Public Health granted by the Queen's University of Belfast, the University of Cambridge, and the various licensing bodies.

Post-Graduate Research Fund.—Grants from this fund may be obtained by graduates in medicine of the University of Belfast of not more than three years' standing. Such research grants are available for graduates who desire to prosecute original research or clinical study in some department of medicine. Applicants must give such evidence of capacity for the work which they desire to prosecute as shall appear satisfactory to the Faculty of Medicine. The holders of such grants must furnish reports of their work either during the prosecution of, or at the close of, their studies. Further information regarding these research grants may be obtained from the Secretary of the University, to whom all applications must be forwarded.

The new Public Health Laboratories at Queen's University, which were completed and furnished last session, are now in full working order and are available for, and are being used in connexion with, post-graduate research.

Cork.—At University College a post-graduate course is held for the Diploma in Public Health, including Chemistry and Bacteriology. No post-graduate courses have up the present been held at the hospitals. All the College and hospital courses are open to men and women students.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned have been granted commissions as Surgeons for temporary service in His Majesty's Fleet:—Dated August 26th: Eric Arthur Langford Sansom and Rowland Hill. Dated August 27th: Douglas Bell.

The undermentioned have been entered as Surgeons for temporary service in His Majesty's Fleet:—A. C. Anderson and T. J. Nicholl.

The following appointments have been notified:—Fleet-Surgeons: W. E. Mathew to hospital ship *Soudan*, vice Philip; and T. W. Philip to the *Cochrane*, vice Mathew. Surgeons: A. A. Sanders and J. G. Boal, both to the *Pembroke*, additional, for disposal; M. M. Melrose to the *Victory*, and E. St. G. S. Goodwin to the *Vivid*, both additional, for disposal; and J. S. Ward to the *Victory*, additional, for disposal. Temporary Surgeons: E. P. Gould to hospital ship *China*, vice Creighton; W. P. Vicary to the *Victory*, additional; R. J. Inman to the *Hecla*, vice Vicary; E. A. L. Sansom and D. Bell, both to Haslar Hospital; R. Hill to Chatham Hospital; R. Lyon to the *Canopus*, vice Ellis; A. L. Pearce Gould to hospital ship *Soudan*, vice Watson Cheyne; W. H. Watson Cheyne to the *Pembroke*, additional, for Chatham Hospital; J. A. Fairer to the *Victory*, additional, for Haslar Hospital, vice Gould; R. M. Dannatt to the hospital ship *Agadir*; C. M. Burrell to the *Princess Royal*; A. F. McIntosh to the *Temeraire*; R. St. L. Brockman to the *Pomone*, additional, for Dartmouth College; J. D. Milligan to the *Defence*; G. S. B. Long to the *Minotaur*; and H. G. Chaplin to the *Hampshire*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon: P. Southan has been granted temporary commission.

Surgeon Probationers: D. J. Morrison to the *Leonidas*, vice Woodward; and M. J. Gibson to the *Druid*, vice Hicks.

ARMY MEDICAL SERVICE.

Lieutenant-Colonel (temporary Colonel) Richard R. Sleman, Royal Army Medical Corps (Territorial Force), to be an Assistant Director of Medical Services, and to retain his temporary rank whilst so employed (dated August 5th). Colonel Robert J. Geddes, D.S.O., is retained on the Active List, and to be supernumerary (dated August 13th).

ROYAL ARMY MEDICAL CORPS.

Temporary Lieutenant (temporary Honorary Lieutenant-Colonel) Arthur S. Woodwark to be temporary Lieutenant-Colonel (dated August 12th).

The undermentioned to be temporary Majors:—Temporary Lieutenant Robert C. Brown, whilst employed in charge of the Springburn and Woodside Hospital, Glasgow (dated August 14th). Temporary Captain George Stoker (dated August 21st). Temporary Lieutenant Thomas W. Buckley to be temporary Honorary Major whilst serving with the Princess Christian Hospital (dated August 18th).

The date on which the undermentioned temporary Lieutenants relinquish their commissions is August 7th, and not as stated in THE LANCET of Sept. 4th:—Maitland Radford, Gilbert C. Chubb, Robert G. Brown, Alma P. Ford, Frederick G. Chandler, George C. Metcalfe, and Arthur G. H. Lovell.

John Suffield Whestone to be temporary Quartermaster, with the honorary rank of Lieutenant (dated August 20th).

The undermentioned temporary Lieutenants relinquish their commissions:—Dated August 9th: Henry Robinson, Arthur E. Brown, and Bernard V. Dunne. Dated August 10th: John S. Avery, John Dotto, Montague S. Woolf, John Whigham, Philip W. James, Cornelius Molan, and Robert J. Harley-Mason.

The name of temporary Lieutenant George Raphael Buick Purce is as now described, and not as stated in THE LANCET of August 14th.

Temporary Lieutenant William R. A. Coates relinquishes his commission on account of ill-health (dated Sept. 4th).

Lieutenants (on probation) John A. Musgrave and Charles M. G. Campbell are confirmed in rank.

The undermentioned to be temporary Quartermasters, with the honorary rank of Lieutenant:—Dated August 28th: John Thomas Cooke, Herbert Hargreaves Donnelly, William Frederick Grocott, William John Cyril Merryman, and Edwin Turner Grundey.

The undermentioned temporary Lieutenants to be temporary Captains:—Dated August 5th: Ernest E. S. J. Galbraith, William T. Hessel, Arthur T. Todd, Frederick W. Robinson, and Frank Whitby. Dated August 6th: Richard B. Lilly. Dated August 7th: Harold A. Douglas, Malcolm Donaldson, Arthur J. Eagleton, William Kelsey-Fry, Horace W. Hay, Charles S. P. Hamilton, William M. Howells, George D. Jameson, Louis Lazarus, Harold Y. Mansfield, Reginald K. MacGregor, Alexander F. Potter, Duncan W. Pailthorpe, Henry D. Robb, William H. D. Smith, Ernest Scott, John Fraser Taylor, Herbert A. Watermeyer, Martyn H. Watney, Charles S. E. Wright, Owen L. V. de Wesselow, Arthur J. Waugh, Ivan S. Wilson, William Allan, Hamish M. Anderson, Kenneth B. Aikman, Henry W. Batchelor, St. John D. Buxton, Howard A. Bell, Sidney A. Boyd, and John A. Cowan. Dated August 8th: William H. Lister, Charles W. B. Littlejohn, Rupert S. Scott, Vernon C. W. Vickers, Henry B. Owens, and Percy P. Butler. Dated August 9th: Francis Henderson, William E. Hallinan, Eric L. MacKenzie, Hyacinth B. Morgan, Herbert O'Callaghan, Robert K. Sutherland, William G. Waugh, Lionel D. Woods, Thomas L. Fraser, Stanley Arnott, and Edward Billing. Dated August 10th: Frederick C. Davies, Wilberforce V. Eaves, Walter Groome, Arthur S. Glynn, John Greene, William G. Goudie, John B. Haycraft, William O. Halpin, George M. W. Hodges, Cecil B. Hogg, Claude C. Harrison, Ronald Hodson, John L. Jackson, Geoffrey T. Loughborough, Alan Mann, Colin Mackenzie, Hugh W. Moir, Findlay Murchie, Hugh J. Orr-Ewing, Francis W. O'Connor, James E. H. Roberts, Wilfred A. Russell, Edmund L. Reid, William J. Stewart, Maitland Scott, Cyril Sherris, Ronald Silcock, Reginald S. S. Statham, Lionel H. Y. Stephen, James S. Stewart, Thomas V. Somerville, Gerald A. Smythe, Robert S. Snowie, Vincent Townrow, Cyril E. Thwaites, Hugh D. Willis, Frederick E. S. Willis, Eric Wordley, Charles H. S. Webb, Donald McD. Wilson, Philip R. Woodhouse, Charles Weller, Humphrey B. Wilson, Basil W. Armstrong, William R. Addis, Norman Briggs, Lancelot G. Bourdillon, Gavin S. Brown, John B. Burgess, Arthur E. Bullock, Monamy A. C. Buckell, Bertram F. Bartlett, Charles N. Binney, Cyril J. W. Clayton, George M. Campbell, and David H. Clarke. Dated August 11th: Walter S. Danks, William F. Evans, Wilfred F. Hawkins, Leonard L. Hadley, William H. Johnston, Herbert H. P. Morton, Henry Moore, John Morris, Victor E. Negus, Duncan J. McRae, Norman P. Pritchard, William A. Ryan, Harold B. G. Russell, Nicol McN. Rankin, Robert L. Roe, Adrian D. Stokes, Ralph L. Scott, Francis R. Thornton, Henry E. Wiltshire, Harold E. McM. Wall, John B. Young, Ralph D. O'Leary, Edward W. Carrington, and Alexander B. Cheves. Dated August 12th: Cedric L. Dold, Henry de C. Dillon, James H. Dible, Charles H. Evans, Joseph H. Elliott, John McI. Falkiner, James R. C. Greenlees, Joseph G. Greenfield, Thomas H. Holroyd, George W. Kendall, Thomas M. Low, George A. Lilly, Clement R. Macleod, Stuart A. O. Mackenzie, Henry F. Mullan, Sidney H. Nathan, Montgomery P. Paton, Charles M. Row, James H. Ritchie, William L. Scott, Herbert W. Smith, Frederick J. Thorne, Russell E. Walker, Frederick J. Whitelaw, Edward A. Aldridge, Henry J. Burke, and Cyril A. Bernard. Dated August 13th: Kenneth B. Dickson, Charles H. Denham, Alexander R. Esler, William B. Gordon, Oliver K. Hartridge, Frederick T. Hill, James E. T. Jones, James D. Jones, Trevor A. Lawder, Thomas Martin, Hugh J. More, Samuel W. McLellan, Frederick L. Napier, George Rickman, Charles M. Rout, David H. Russell, Granville D. Robertson, Robert B. Rutherford, John Sainsbury, George W. Smith, Arthur F. S. Sladden, Humphrey M. Hart-Smith, Herbert Walker, and Spencer L. Walker. Dated August 14th: William Duguid, George Elkington, George D. Ferguson, Gilbert L. K. Finlay, Geoffrey P. Humphery, Robert H. C. Lyons, George R. D. McGeagh, Edward J. Nangle, Edward O'Connor, Arthur S. Plant, Hubert A. Pallant, John W. Pell, John F. G. Richards, Carlyle Aldis, Robert M. Alcorn, Cecil Bluett, Aleck W. Bourne, Gurth S. Blandy, and John D. Carroll. Dated August 15th: Robert V. Dolbey, Richard E. Gibson, Cameron R. Gibson, Charles E. Hibbard, John H. Hood, Frederick M. S. Hulke, Thomson Henderson, Henry J. R. Jones, Basil T. Lang, Robert E. Lee, John B. Lowe, George C. M. M'Gonigle, Leslie Meakin, John B. Matthews, Philip W. Maclagan, Henry F. Marris, John A. MacLeod, William B. Purchase, Andrew E. S. Pringle-Pattison, Henry E. Peake, Joseph A. Quin, Alexander A. Rees, Edwin C. Rayner, Harold Sheldon, Hugh L. Sells, Lawrence L. Satow, Richard W. Smith, James L. Stewart, Victor F. Soothill, Douglas W. Smith, Arthur Tilbury, Oscar R. L. Wilson, Alfred S. Wakeley, Frederick B. Winfield, Robert J. B. Madden, Reginald H. Jones, William D. Arthur, James N. Armstrong, George N. Braham, Hamish D. F. Brand, and Arthur Joseph Blake. Dated August 16th: Philip Ferguson, Edward G. Foley, Carleton Y. Ford, James F. Fairley, Ernest H. Griffin, Thomas Hardy, Theodore H. Just, Geoffrey L. Keynes, George J. W. Keigwin, Joseph P. Little, Edmund H. Moore, Adolph R. N. MacGillycuddy, John H. Meers, Kenneth P. Mackenzie, Edward Thomas C. Milligan, Sydney F. McDonald, Ernest S. Miller, Hector Mortimer, Robert M. Miller, Charles J. O'Reilly, Maurice N. Perrin, Thomas E. Parrer, Charles P. Porter, William E. Reid, Horatio F. N. Scott, William V. T. Styles, Alexander W. Uloth, Bernard H. Well, Thomas S. Allen, George G. Anderson, Henry Cordner, Francis H. Cleveland, William L. Cassells,

and Frank D. Cairns. Dated August 17th: John M. Gillespie, George W. L. Kirk, David C. Monro, Herbert F. W. Adams, Frederick C. Atkinson-Fleming, and Alexander Baldie. Dated August 18th: William Foot, Alexander T. I. MacDonald, Frederick C. K. Austin, and Allan L. Christie. Dated August 19th: John C. Hallinan and Ivan C. Maclean. Dated August 20th: Arthur W. Dennis, Byron L. Hutchence, Arthur D. Haydon, Arthur G. Maitland-Jones, John W. Linnell, Robert R. Archibald, and Ian M. Brown. Dated August 22nd: Walter Dawson, Cosmo W. Fowler, Rudolf W. Galloway, Harry L. S. Griffiths, Robert H. Hodges, Ronald N. Hunter, Charles H. Hart, William Henderson, Francis H. Moxon, John M. McLaggan, Francis L. Nash-Wortham, John Proctor, William D. Reid, Andrew Topping, Edward H. Udall, Gerald N. B. Sebastian, Leslie Adamson, Galvin A. E. Argo, Edward W. Archer, Robert H. Alexander, Mark B. Baines, John S. Buchanan, David D. Craig, and Spencer S. Crosse.

The dates on which the undermentioned Lieutenants relinquish their commissions are as now stated, and not as notified before:—Dated August 11th: Charles S. Atkin, Cecil K. Attlee, Edward N. Graham, Neville C. Wallis, and John A. West. Dated August 12th: Thomas A. Jones, Andrew B. Lindsay, Charles W. Forsyth, William A. Wilson-Smith, and Henry G. Greaves.

Temporary Lieutenant Frederick G. Thompson relinquishes his commission on account of ill-health (dated Sept. 1st). Francis George Payne to be temporary Quartermaster, with the honorary rank of Lieutenant (dated August 25th).

The undermentioned to be temporary Captains:—Henry William Martindale Kendall (late Captain, Army Medical Staff) (dated July 15th), John Lewis Maitland Govan (dated August 28th), and temporary Lieutenant Francis Charlesworth (dated Sept. 8th).

Lieutenant Ian Macdonald relinquishes his temporary commission on account of ill-health (dated July 29th). (Substituted for the notification which appeared in THE LANCET of May 29th, 1915.)

The undermentioned to be temporary Lieutenants:—Charles Richard Whittaker (dated July 3rd) and Richard William Ely Roe (dated July 15th).

Charles Carrick Brewis to be temporary Honorary Lieutenant (dated August 18th).

The undermentioned to be temporary Quartermasters, with the honorary rank of Lieutenant:—Dated August 30th: George Edward Barney and John Watson.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned Lieutenants (on probation) are confirmed in their rank: Charles H. Brennan, Samuel D. Lodge, and Arthur J. Beveridge.

TERRITORIAL FORCE.

Royal Army Medical Corps.

South Midland Mounted Brigade Field Ambulance: To be Captains: Lieutenants Alfred G. Levy, James H. Wilkinson, and George C. Souttar.

Notts and Derby Mounted Brigade Field Ambulance: The undermentioned Lieutenants to be Captains: Lewis Moysey, William A. Brechin, and Frank Standish.

South Wales Mounted Brigade Field Ambulance: Lieutenant John A. Cooke to be Captain.

East Anglian Field Ambulance: Lieutenant Arthur W. Paterson and Lieutenant Sigismund H. Rentzsch to be Captains.

North Midland Field Ambulance: The undermentioned Lieutenants to be Captains: Hugh A. Macmillan, Matthew T. Ascough, Thomas S. Elliot, Alexander Fordyce, Arthur Heath, Henry P. Malcolm, Robert J. McConnell, Edward C. T. Emerson, Charles C. Grummit, John G. J. Green, James E. S. Smith, and George F. Denning.

South Midland Field Ambulance: Lieutenant Frank T. Boucher to be Captain.

Scottish General Hospital: Major Duncan O. MacGregor resigns his commission on account of ill-health.

Southern General Hospital: Lieutenant Robert J. Irving to be Captain. Geoffrey Legh Wilkinson to be Lieutenant.

North Midland Casualty Clearing Station: Albert Richard Henchley (late Major, Home Counties Field Ambulance) to be Major (temporary).

West Riding Field Ambulance: Lieutenant Digby Wrangham Hardy to be Captain.

Welsh Border Mounted Brigade Field Ambulance: Haldane Carson Gilmore to be Lieutenant.

South Western Mounted Brigade Field Ambulance: Lieutenant Louis J. E. McHugh to be Captain. Hugh Wansey Bayly (late temporary Surgeon, Royal Navy) to be Captain (temporary).

North Midland Mounted Brigade Field Ambulance: The undermentioned Lieutenants to be Captains: John B. Stanley and Samuel Acheson. Sydney Alan Stormer Malkin to be Lieutenant.

Highland Field Ambulance: To be Captains: Lieutenants Thomas S. Slessor and William H. E. Brand. To be Lieutenants: Alexander Main Baillie, Harry Gordon Donald, John William McKeggie, Cadet James Alexander Sellar (from the Aberdeen University Contingent, Senior Division, Officers Training Corps), and William Charles Davidson Wilson.

Wessex Field Ambulance: Lieutenant Frank A. Roper to be Captain.

Home Counties Field Ambulance: Captain Augustine Griffith, from the Sanitary Service, to be Captain. Corporal Stanley Stephens Eyre, from the West Kent (Queen's Own) Yeomanry, to be Transport Officer, with the honorary rank of Lieutenant.

London Field Ambulance: Edgar Alfred Lambert to be Transport Officer, with the honorary rank of Lieutenant.

London General Hospital: The undermentioned Lieutenants to be Captains and to remain seconded: George H. D. Webb and Edward Smeed. The undermentioned Lieutenants are seconded for duty with the Highland Field Ambulance: John St. A. Titmas, Harry A. Lucas, John B. Rawlins, and Philip W. Green.

Attached to Units other than Medical Units.—To be Majors: Major Frederick J. Oxley (from the London Regiment), Captain Charles A. C. Smelt, and Surgeon-Major John Nightingale (from the West Riding Brigade, Royal Field Artillery). To be Captains: Lieutenant George B. Forge, Lieutenant John Saffley, Lieutenant George Candler, Lieutenant Hastings F. Everett, Lieutenant Jesse R. Garrood, Lieutenant George B. H. Jones, Lieutenant William E. L. Elliott, Lieutenant Charles A. Sampson, Lieutenant Robert L. Guthrie, Lieutenant Charles J. Fox, and Lieutenant Frederick Hunton. To be Lieutenants: Frederick Arthur Pring, Wilfred Percy Tindal Atkinson, Lieutenant Harry M. Soden (from the Welsh Field Ambulance), and Arthur Benjamin Winder.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7599 births and 4274 deaths were registered during the week ended Saturday, August 28th. The annual rate of mortality in these towns, which had been 11·3, 11·5, and 11·4 per 1000 in the three preceding weeks, rose in the week under notice to 12·3 per 1000 of their aggregate population estimated at 18,136,180 persons at the middle of last year. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 11·6, against 11·4 per 1000 in London. The annual death-rate for the week ranged from 3·5 in Wimbledon, 5·6 in Southend-on-Sea, 6·1 in Lincoln, 6·2 in Gloucester, and 6·4 in Hornsey and in Reading, to 17·2 in Great Yarmouth, 17·7 in Middlesbrough, 17·8 in Bootle, 18·2 in Barrow-in-Furness, and 18·7 in South Shields.

The 4274 deaths from all causes were 295 in excess of the number in the previous week, and included 681 which were referred to the principal epidemic diseases, against numbers increasing from 346 to 529 in the four preceding weeks. Of these 681 deaths, 496 resulted from infantile diarrhœal diseases, 66 from measles, 47 from diphtheria, 37 from whooping-cough, 26 from scarlet fever, and 9 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·0, or 0·5 per 1000 in excess of that recorded in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had steadily increased from 67 to 348 in the eight preceding weeks, further rose to 496 in the week under review, of which 120 occurred in London, 40 in Birmingham, 31 in Liverpool, 30 in Manchester, 23 in Hull, 22 in Sheffield, and 20 each in Leicester and Leeds. The deaths attributed to measles, which had been 70, 86, and 72 in the three preceding weeks, further fell to 66, and included 16 in London, 4 each in Bradford and Rhondda, and 3 each in Bristol, Liverpool, Salford, and York. The fatal cases of diphtheria, which had been 46, 32, and 46 in the three preceding weeks, were 47, of which 13 were registered in London and 3 in Hull. The deaths referred to whooping-cough, which had been 42, 33, and 40 in the three preceding weeks, fell to 37; 13 deaths occurred in London and 2 each in Birmingham, Sheffield, and South Shields. The deaths attributed to scarlet fever, which had been 20, 21, and 14 in the three preceding weeks, rose to 26, and included 3 each in London, Manchester, and Sheffield, and 2 each in Portsmouth, Warrington, and Newcastle-on-Tyne. The fatal cases of enteric fever, which had been 13, 7, and 9 in the three preceding weeks, were again 9 in the week under notice, of which 2 occurred in Rhondda.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 2483 to 2367 in the five

preceding weeks, further fell to 2360 on August 28th; 315 new cases were admitted during the week, against 285, 279, and 225 in the three preceding weeks. These hospitals also contained on the date mentioned 1142 cases of diphtheria, 63 of enteric fever, 37 of measles, and 11 of whooping-cough, but not one of small-pox. The 1078 deaths from all causes in London were 85 in excess of the number in the previous week, and corresponded to an annual rate of 12·4 per 1000. The deaths referred to diseases of the respiratory system, which had been 111, 129, and 99 in the three preceding weeks, were 100 in the week under notice, and were 32 below the number recorded in the corresponding week of last year.

Of the 4274 deaths from all causes in the 96 towns, 199 resulted from different forms of violence and 346 were the subject of coroners' inquests, while 1271 occurred in public institutions. The causes of 33, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Sheffield, Leeds, Bristol, West Ham, Nottingham, and in 69 other smaller towns. Of the 33 uncertified causes of death, 4 were registered in Birmingham, 3 in London, and 2 each in Gillingham, Liverpool, Bolton, Preston, Gateshead, and Tynemouth.

In the 96 largest English and Welsh towns 7420 births and 4224 deaths were registered during the week ended Saturday, Sept. 4th. The annual rate of mortality in these towns, which had been 11·5, 11·4, and 12·3 per 1000 in the three preceding weeks, fell to 12·1 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 11·6, against a corresponding rate of 11·5 per 1000 in London. The annual death-rate last week ranged from 4·0 in Dudley, 5·2 in Bath, 5·6 in Eastbourne, 5·9 in Swindon, and 6·3 in Ilford and in Cambridge, to 16·6 in Gateshead, 16·8 in Rotherham, 17·0 in Birkenhead, 17·1 in Salford, 17·8 in Bootle, and 18·1 in Middlesbrough.

The 4224 deaths from all causes were 50 fewer than the number in the previous week, and included 745 which were referred to the principal epidemic diseases, against numbers rising from 346 to 681 in the five preceding weeks. Of these 745 deaths, 593 resulted from infantile diarrhœal diseases, 50 from whooping-cough, 41 from measles, 33 from diphtheria, 22 from scarlet fever, and 6 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·1, against 2·0 per 1000 in the previous week. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had steadily increased from 67 to 496 in the nine preceding weeks, further rose to 593 last week; 156 deaths were registered in London, 48 in Birmingham, 41 in Liverpool, 35 in Sheffield, 25 in Manchester, 18 in Leicester, 17 in Hull, and 15 in West Ham. The deaths attributed to whooping-cough, which had been 33, 40, and 37 in the three preceding weeks, rose to 50 last week, and included 22 in London and 4 in Birmingham. The fatal cases of measles, which had been 86, 72, and 66 in the three preceding weeks, further declined to 41 last week, of which 4 were registered in London and in Southampton, and 3 each in Manchester, Blackburn, and Middlesbrough. The deaths attributed to diphtheria, which had been 32, 46, and 47 in the three preceding weeks, fell to 33 last week, and included 7 in London and 3 each in Liverpool and Hull. The deaths referred to scarlet fever, which had been 21, 14, and 26 in the three preceding weeks, fell to 22 last week, of which 4 were registered in London, 3 in Manchester, and 2 each in Derby, Salford, and South Shields. The fatal cases of enteric fever, which had been 7, 9, and 9 in the three preceding weeks, fell to 6 last week, and included 2 each in London and Plymouth.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 2483 to 2360 in the six preceding weeks, rose to 2365 on Saturday last; 365 new cases were admitted during the week, against 279, 225, and 315 in the three preceding weeks. These hospitals also contained on Saturday last 1156 cases of diphtheria, 58 of enteric fever, 37 of measles, and 12 of whooping-cough, but not one of small-pox. The 1088 deaths from all causes in London were 10 in excess of the number in the previous week, and corresponded to an annual death-rate of 12·6 per 1000. The deaths referred to diseases of the respiratory system, which had been 129, 99, and 100 in the three preceding weeks, rose to 121 in the week under notice, but were 7 below the number registered in the corresponding week of last year.

Of the 4224 deaths from all causes in the 96 towns, 179 resulted from different forms of violence and 354 were the subject of coroners' inquests, while 1194 occurred in public institutions. The causes of 34, or 0·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in Manchester, Leeds, Bristol, West Ham, Bradford, Hull, and in 71 other smaller towns. Of the 34 uncertified causes of death, 6 were registered in Birmingham, 5 in Liverpool, 3 in London, and 2 each in Rochdale, Halifax, Stockton-on-Tees, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,345,000 persons at the middle of this year 1034 births and 600 deaths were registered during the week ended Saturday, August 28th. The annual rate of mortality in these towns, which had declined from 14·2 to 12·3 per 1000 in the five preceding weeks, rose to 13·3 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 13·5, against a corresponding rate of 11·6 per 1000 in the large English towns. The death-rate for the week ranged from 8·2 in Clydebank, 8·8 in Motherwell, and 10·0 in Dundee, to 15·5 in Ayr, 17·1 in Aberdeen, and 17·8 in Paisley.

The 600 deaths from all causes exceeded those in the previous week by 48, and included 76 which were referred to the principal epidemic diseases, against 91 and 72 in the two preceding weeks. Of these 76 deaths, 30 resulted from infantile diarrhœal diseases, 17 from measles, 9 each from scarlet fever, whooping-cough, and diphtheria, and 2 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·7, against 2·0 per 1000 in the large English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 21, 29, and 28 in the three preceding weeks, rose to 30, and included 12 in Glasgow, 4 in Dundee, 3 in Edinburgh, and 2 in Coatbridge. The deaths attributed to measles, which had declined from 46 to 23 in the four preceding weeks, further fell to 17, of which 9 occurred in Glasgow and 4 in Edinburgh. The fatal cases of scarlet fever, which had been 9, 20, and 8 in the three preceding weeks, were 9, and comprised 3 each in Glasgow and Aberdeen, 2 in Paisley, and 1 in Coatbridge. The deaths referred to whooping-cough, which had been 13, 1, and 5 in the three preceding weeks, rose to 9, and included 4 in Glasgow and 3 in Aberdeen. The deaths attributed to diphtheria, which had been 3, 6, and 6 in the three preceding weeks, further rose to 9, of which 3 were registered in Aberdeen, and 2 each in Glasgow and Edinburgh. The fatal cases of enteric fever were recorded in Glasgow and Ayr.

The deaths referred to diseases of the respiratory system, which had been 70, 56, and 58 in the three preceding weeks, were again 58 in the week under notice, and were 12 less than the number registered in the corresponding week of last year. The deaths from the various forms of violence numbered 28, against 26 and 34 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,212,380 persons at the middle of this year 563 births and 338 deaths were registered during the week ended Saturday, August 28th. The annual rate of mortality in these towns, which had been 11·9, 14·6, and 13·6 per 1000 in the three preceding weeks, rose to 14·5 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 13·7, against corresponding rates of 11·6 and 13·5 per 1000 in the English and Scotch towns respectively. The annual death-rate for the week was equal to 16·8 in Dublin (against 12·4 in London and 13·9 in Glasgow), 14·0 in Belfast, 11·6 in Cork, and 19·0 in Londonderry, Limerick, and Waterford, while in the 21 smaller towns the mean rate did not exceed 10·1 per 1000.

The 338 deaths from all causes were 21 in excess of the number in the previous week, and included 49 which were referred to the principal epidemic diseases, against numbers rising from 24 to 42 in the three preceding weeks. Of these 49 deaths, 36 resulted from infantile diarrhœal diseases, 5 from whooping-cough, 3 from diphtheria, 2 each from measles and scarlet fever, and 1 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·1, against corresponding rates of 2·0 and 1·7 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 13, 18, and 28 in the three preceding weeks, further rose to 36, of which 22 were registered in Dublin, 8 in Belfast, and 2 each in Cork and Dundalk. The deaths attributed to whooping-cough, which had been 4, 10, and 8 in the three preceding weeks, fell to 5, and comprised 4 in Londonderry and 1 in Belfast. The 3 fatal cases of diphtheria were equal to the average in the earlier weeks of the quarter, and were recorded in Dublin, Drogheda, and Sligo respectively. The 2 deaths from scarlet fever and that

from enteric fever occurred in Belfast, and those from measles in Dublin and Belfast.

The deaths referred to diseases of the respiratory system, which had been 26, 40, and 26 in the three preceding weeks, rose to 34 in the week under notice. Of the 338 deaths from all causes, 102, or 30 per cent., occurred in public institutions, and 3 resulted from different forms of violence. The causes of 8, or 2·4 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes did not exceed 0·8 per cent.

In the 27 town districts of Ireland 586 births and 368 deaths were registered during the week ended Saturday, Sept. 4th. The annual rate of mortality in these towns, which had been 14·6, 13·6, and 14·5 per 1000 in the three preceding weeks, rose to 15·8 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 13·9, against corresponding rates of 11·6 and 13·4 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 16·3 in Dublin (against 12·6 in London and 12·2 in Glasgow), 15·4 in Belfast, 15·6 in Cork, 29·1 in Londonderry, 14·9 in Limerick, and 19·0 in Waterford, while in the 21 smaller towns the mean rate did not exceed 13·0 per 1000.

The 368 deaths from all causes were 30 in excess of the number in the previous week, and included 59 which were referred to the principal epidemic diseases, against numbers increasing from 24 to 49 in the four preceding weeks. Of these 59 deaths, 41 resulted from infantile diarrhœal diseases, 8 from whooping-cough, 5 from scarlet fever, 2 each from enteric fever and diphtheria, and 1 from measles, but not one from small-pox. The mean annual death-rate from these diseases was equal to 2·5, against 2·1 per 1000 in the English towns. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had increased from 13 to 36 in the four preceding weeks, further rose to 41 last week, and included 18 each in Dublin and Belfast, 3 in Londonderry, and 2 in Cork. The deaths referred to whooping-cough, which had been 10, 8, and 5 in the three preceding weeks, rose to 8 last week, and comprised 5 in Belfast, 2 in Londonderry, and 1 in Kilkenny. The 5 fatal cases of scarlet fever, of which 3 occurred in Belfast, were 2 in excess of the average in the earlier weeks of the quarter. The deaths from enteric fever and measles were registered in Belfast, and those from diphtheria in Belfast and Wexford.

The deaths referred to diseases of the respiratory system, which had been 40, 26, and 34 in the three preceding weeks, fell to 28 in the week under notice. Of the 368 deaths from all causes 133, or 36 per cent., occurred in public institutions, and 6 resulted from violence. The causes of 13, or 3·5 per cent., of the total deaths were uncertified, against 0·8 per cent. in the large English towns.

ROYAL SANITARY INSTITUTE.—The provincial sessional meeting of the Royal Sanitary Institute was held at Brighton on Sept. 3rd and 4th. On the opening day a paper was read by Major S. P. James, M.D., I.M.S., head of the Kitchener Indian Hospital at Brighton, on Sanitary Problems in Hospitals for Indian Troops in England, and interested spectators of the proceedings were some 20 Indian soldiers of different castes and races who were present in order to illustrate the different types of Indians who are being catered for in Brighton. Major James's paper gave a comprehensive survey of the arrangements that had to be made at both the Kitchener and Royal Pavilion Hospitals to enable the patients and staffs to live in accordance with the varying rules enjoined by their religious sects. Major C. C. Murison, I.M.S., staff officer at the Kitchener Hospital, read a paper dealing with the use of storm water drains to ensure safe water-supplies being obtained from polluted catchment areas, and he exhibited and explained models of a fly-proof meat-market and sweetmeat stall for the tropics. Lieutenant-Colonel H. R. Kenwood, M.B., R.A.M.C., introduced the subject of Camp Sanitation, giving results of the inspection of most of the great camps in the United Kingdom. Later in the day the members of the Institute and friends visited either the Kitchener or the Royal Pavilion Hospital, and as ladies are not admitted to the Indian hospitals a special visit was arranged to the school clinic and sanatorium. On the second day Dr. P. Boobbyer, M.S., initiated a discussion on Maternity and Child Welfare, and there was also a debate on the Final Report of the Royal Commission on Sewage Disposal, led by Dr. Samuel Rideal, D.Sc., F.I.C., and Mr. J. D. Watson, M.I.C.E. Visits were made to the Shoreham Camp and the Brighton Electricity Works.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Insanity in Ireland.

THE annual report of the inspectors of lunatics in Ireland, recently issued, states that there were at the beginning of the present year 13,187 male and 11,993 female insane under care in Ireland. The total, 25,180, is greater by 171 than at the beginning of the previous year. The increase during 1914 was 50 less than the average increase for the preceding ten years. Since 1880 the proportion of insane under care to the total population has increased from 250 to 575 per 100,000. During the year 1914 the pauper lunatics in workhouses decreased by 1073, of whom 652 were transferred to district asylums. The inspectors do not think that the war has been responsible for any increase of insanity, the number of cases admitted which were due in whole or in part to mental stress not showing any increase during 1914. On the other hand, the cases in which alcohol was assigned as a principal cause showed a marked increase of all admissions, as the following figures witness: 1910, 10·48 per cent.; 1911, 8·83; 1912, 9·53; 1913, 8·62; and 1914, 11·01. This sudden increase in 1914 may be due indirectly to the war producing a greater consumption of alcohol. The inspectors adduce evidence to show that venereal disease plays only an insignificant part in the causation of mental abnormality in Ireland. The great majority of the county asylums contain little or no general paralysis, and inquiry has shown that the few cases met with in them occur in persons who have served with the forces of the Crown or have lived in seaports. The only asylums in which the death-rate from general paralysis approaches the similar rate in English and Scottish asylums are Belfast, with 17·10 per cent., and the Richmond Asylum, Dublin, with 11·26 per cent. During the year 1914 two deaths occurred by suicide, three by misadventure, and one from injuries inflicted by another patient. In Cork, Castlebar, and Sligo asylums there were outbreaks of enteric fever during the year. In the Richmond Asylum there were 30 cases of dysentery, with six deaths. The gross average cost per head varied from £21 18*s.* 1*d.* in Killarney Asylum to £35 3*s.* 8*d.* in the Richmond Asylum. Further accommodation is required in many asylums, notably in Castlebar, Mullingar, Omagh, and Sligo.

Belfast and Pauperism.

The Government returns for the month of July show that Belfast can claim the distinction of having the lowest pauperism record per 10,000 of the population of any city in the United Kingdom, the rate being 79, while in England and Wales the rates ranged from 361 in the central district of London to 96 for the Bolton and Oldham and Halifax and Huddersfield districts. The rates for Scotland varied between 221 in the Glasgow and 135 in the Dundee and Dunfermline districts. The record for the Dublin district was 258, for Cork, Waterford, and Limerick 298, and the Galway district 129. The total number of paupers on one day in the second week of July last in the Belfast district was 3343, a reduction of 2 per 10,000 compared with a month previously, and a decrease of 10 per 10,000 compared with last year.

Tyrone Medical Association.

At a meeting of the County of Tyrone Medical Association held on Sept. 3rd, Dr. E. C. Thompson

presiding, the following resolution was passed unanimously:—

That we, the Tyrone Medical Committee, condemn in the strongest possible manner the unpatriotic action of the majority of the Clogher board of guardians in appointing to the office of dispensary medical officer a young medical man qualified to serve his country at the front in the Royal Army Medical Corps, and ignoring the long services of the other candidate, Dr. R. H. Ross, who already for many years was permanently settled in the district, and had proved his ability to discharge the duties of this office in addition to those of medical officer of the workhouse.

A resolution was also passed protesting against the appointment of whole-time referees under the Insurance Act, but advocating the procedure which has worked so well under the Workmen's Compensation Act, of each society supplying its own medical referee at its own expense. A further resolution was also passed in favour of amalgamation of the British and Irish Medical Associations, and of making the Tyrone Medical Association a branch. On the part of the dispensary medical officers, resolutions were carried as to the scale of consultation fees, the right to a month's holiday each year, fixing £4 4*s.* per week as the remuneration for doctors of district hospitals, and as to curtailing of the moderate holidays requested by Dr. H. B. Fleming, the medical officer of Omagh union workhouse. These proposals, regarding Poor-law medical officers, were placed before the Omagh guardians at their meeting on Sept. 4th, but after some discussion the board decided to take no action.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Gaseous Gangrene.

SINCE the beginning of the war this serious complication of wounds has been the object of much work and research. Quite recently, however, the subject has been studied and discussed before the Société de Chirurgie. M. Schwarz communicated the observations of M. Jacomet on 14 cases of gaseous gangrene developing rapidly and accompanied by serious general symptoms. In 3 of the patients no operation was possible and they quickly succumbed. Four treated by amputation or by incisions (*débridement*) with the bistoury died in a few days. In the other 7 cases M. Jacomet very freely incised and amputated with the thermocautery and obtained success in 6 cases. He recommends, as soon as possible after the arrival of the wounded, parallel incisions with the thermocautery 19–20 cm. in length, and distant from one another 6–7 cm., involving the whole crepitating zone and reaching its upper limit. The incisions must comprise the skin and aponeuroses. He then detaches with the finger the cellular tissue, leaving all the surfaces under the skin exposed. He washes all the detached parts with compresses of peroxide solution (12 volumes), places pledgets and drains in the incisions, and covers the whole limb with compresses soaked in Lucas-Championnière's dressing which is renewed daily. When gas gangrene complicates a wound and causes mortification of part of the limb he does not immediately amputate the mortified part. He waits after having made the big incisions for a line of elimination to appear. He then at this line divides with the thermocautery all the soft parts, and saws the bone. Ultimately, and only when healing begins, he performs a regular amputation. In the discussion Professor Pierre Delbet recalled that gas gangrene varies. Sometimes cases apparently very serious are not so in reality, and then any treatment may give wonderful results. Pyoculture alone can give information which allows of prognostication. As regards peroxide he considered injections of it into the tissues might be dangerous to them. M. Quénu thought that the kind of gas gangrene depends not only on the nature of the infecting agents but also on the resisting power of the individual. He also drew attention to tardy cases of gas gangrene developing round old wounds of discharged patients who appeared to be on the way to recovery. He did not share the views of M. Jacomet in regard to therapeutics. In cases of total gangrene entailing the death of the limb the only treatment, according to M. Quénu, is amputation. M. Tuffier insisted on the capital importance of the variety of the gangrene, an indispensable distinction in order to appreciate rightly the value of the therapeutic means used. In the phlegmonous form he considered free incision with the bistoury to be sufficient. In the ascending forms he recommended the galvano-cautery. As for oxygen in the form of gas, he had seen subcutaneous gangrene cured by this means. With very deep gangrene he considered the method useless, saying that in such cases only amputation can provide against accidents. M. Broca reported a rare case of embolic gas gangrene of the nates where there was no wound. The patient, who was wounded in the forearm, succumbed in spite of large incisions. M. Tuffier drew attention to the fact that he had never seen a case of gas gangrene in the head, nor on the face or thorax. M. Lenormand thought that one must before all distinguish localised gas gangrenes from those of a diffuse and extensive variety. In the first form extensive incision of the focus, the opening of all its prolongations and of all its diverticula, and the removal of all foreign bodies were, he said, sufficient to prevent accidents. For the second variety the only resource was immediate amputation as high as possible. Finally M. Morestin protested that the prognosis could not be based on the nature of the gas-producing microbe, but depended on its virulence and the organic resistance of the patient.

Extraction of Projectiles with the Aid of the Camera Obscura.

The localisation of projectiles by radiological examination saves the surgeon from many failures and minimises the perils of operation, but that it is attended by various difficulties is proved by the fact that radiographers have instituted so many different methods of obtaining the best result easily. Dr. Bouchacourt has described the procedure which he employs frequently in the district where he directs a most important radiological establishment; it was introduced by a Swiss medical man. The operation table can be replaced by an ordinary wooden table if necessary, a tube producing X rays being fixed underneath the table. Placed at the side or in front of the operator an observer is supplied with a small portable camera obscura, encased in aluminium, which renders it sterilisable—the manudiascope. This little camera obscura possesses a screen on which the observer follows the movements of the surgical instruments and indicates to the operator the direction to take and the position of the surgical instruments in relation to the foreign bodies to be extracted. The procedure permits of the search for the projectile in every position of the operation, and in the opinion of Dr. Bouchacourt constitutes a notable improvement on the ordinary procedures for radiographic localisation.

Correspondence.

"Audi alteram partem."

HOSPITAL TREATMENT V. LUNACY TREATMENT.

To the Editor of THE LANCET.

SIR,—In reference to the letter from Major W. A. Chapple, M.P., on this subject appearing in your issue of Sept. 4th it should be pointed out that though the contemned alienist may not understand the best policy, yet he recognises in a way that a layman cannot that it is not possible at first in many cases to separate the curable from the incurable cases of mental disorder. Next, as to the stigma of an asylum, we alienists have done our best to get terms such as lunatic and asylum modified, but the disorder exists and will increase whatever terms we use. A good deal of nonsense is talked about the stigma. Many years ago I re-introduced the admission of voluntary boarders into Bethlem Hospital, and to-day hospitals and private asylums receive such patients, who do not feel any stigma attached to them. Another point neglected by the layman is that the concealment of insanity in a family is almost a crime, and this is done more and more when the disorder is only treated as an ordinary malady. I fully agree with Major Chapple's idea that it would be best if all persons of unsound mind passed through a kind of receiving house before being sent to an asylum. It may be said that this is done when persons are first sent to the infirmary, but in my experience persons object strongly to being sent to an infirmary. Such a receiving house is found to work well in Glasgow. For the safe and efficient treatment of acute insanity the ordinary hospital is not suited. Whatever Major Chapple may think, the fully trained hospital nurse is often not only useless, but harmful, in these cases if she has no asylum experience.

In conclusion, I say the early recognition and treatment are essential, and for this special places called mental hospitals are necessary, but the nursing and treatment must be in the hands of persons with experience only to be gained in asylums. Some registration or notification is necessary. It must be more fully recognised that much unsoundness of mind is not to be considered as certifiable insanity. Terms are changing; lunatics are now called persons of unsound mind; asylums are mental hospitals; and I am no longer a mad doctor but an alienist. With all this we shall still have to deal with dangerous and troublesome persons.

I am, Sir, yours faithfully,

Devonshire-place, W., Sept. 5th, 1915. GEO. H. SAVAGE.

A "NEW SIGN" IN PULMONARY DIAGNOSIS.

To the Editor of THE LANCET.

SIR,—In Dr. A. G. Auld's letter in your issue of Sept. 4th dealing with my paper on this subject he says his object is to limit the sphere of his criticism "to one or two statements of fact." But the first and foremost of these "statements of fact," on which, indeed, the main purpose of his letter rests, shows either that he has not properly examined my paper and its diagrams, or else that his recollection of Abrams's work is of a somewhat hazy and inaccurate character. "The first thing I wish to observe is," he remarks, "that the area or areas of dullness depicted by Dr. Riviere correspond exactly to that depicted by Abrams." But that is where he is demonstrably wrong, unless, indeed, he can bring forward any further work of Abrams that goes beyond the facts as I now proceed to state them. Abrams described his "lung reflex of contraction" as showing itself (in so far as changes in percussion resonance are concerned) in dullness appearing at the point struck and spreading thence over the adjacent chest wall. He mentioned no changes over the back occurring as the result of, or as part of his reflex when elicited by percussion of the front of the chest. In a separate communication Abrams has described certain "atelectatic zones" to be found over the chests of some healthy persons. These are circular areas which "vary in size from a 25 cent piece to a dollar or even larger," and his diagram depicts them as occurring five over the back and five in front. Those over the back (the only ones which concern us here) he places, one at the angle of each scapula opposite the seventh dorsal spine, a small one on each side opposite the seventh cervical spine, and, on the right side only, a further circular area over the centre of the scapula. These areas clearly bear no relationship in position, size, shape, or conditions of appearance, to the broad transverse bands of impairment described in my paper. I have always considered that they might be identical with certain of the areas described by the late Dr. D. B. Lees, which latter are, I think, commonly present in healthy chests, though somewhat troublesome to demonstrate.

It must be, I think, these two quite separate claims made by Abrams—the "reflex of contraction" and the "atelectatic zones" in healthy chests—that Dr. Auld has attempted to combine together for my discomfiture, unless he can be referring to Abrams's "vascular parallelogram" which the discoverer places opposite the third, fourth, and fifth dorsal vertebræ, and which thus again bears no resemblance to the bands of impairment described by myself. That I harbour any base designs on the credit justly due to Abrams for his discovery of the lung reflex of contraction I trust no one who has read my paper will believe. If I make any claim it is that the characteristic bands of impairment I describe render the presence or absence of this reflex for the first time recognisable. Formerly the physical signs which attended its presence were in no way distinguishable from impairment due to other causation; it could only be studied as a "kinetic" phenomenon (to borrow a convenient parallel). The possibility of recognising it as a "static" phenomenon renders it a "new sign" in the realm of chest disease, and as such it will be found of value, I hold, along with other points, in the diagnosis of early pulmonary tubercle owing to its constant presence in this disease.

If Dr. Auld will put this matter to a practical test I have some hope that he will arrive at a similar conclusion, and will agree that the bands I describe are not present in health (as are the atelectatic zones), but only in certain forms of lung disease and during the artificial production of Abrams's "reflex of contraction."

At the end I should like to thank Dr. Auld for putting me right on the matter of the dilator nerve-paths in the human vagus by pointing out the occurrence of more recent investigations than those

I put forward in support of Abrams's (not my own) hypotheses. His correction is particularly interesting to me as it seems to afford some explanation of the failure of atropine to remove the lung reflex in certain cases of pulmonary tubercle, as quoted in my paper.

I am, Sir, yours faithfully,

Queen Anne-street, W., Sept. 4th, 1915. CLIVE RIVIERE.

MEDICAL STUDENTS AND COMBATANT COMMISSIONS.

To the Editor of THE LANCET.

SIR,—I am sure we must all sympathise very much with junior or intending medical students who are in doubt as to whether their duty lies in remaining at their work or in offering themselves for combatant service. No doubt it would lessen their difficulties if the War Office could say definitely that it is in the national interest that no medical student should relinquish his studies. The War Office is unwilling to do this, and one can easily imagine that there are many medical students specially well fitted by temperament and physique to make good combatant officers who should in the national interest not be discouraged from accepting commissions.

But this fact throws upon those of us who are responsible for medical education and can foresee the serious dearth of doctors with which the country will be faced after the war, the duty of encouraging the entry into our medical schools of as many young men as possible who, while fit for service as medical practitioners, are not specially qualified for military duty.

It may become necessary if the war is greatly prolonged and the ranks of the profession are still further depleted to devise some means of opening wider the somewhat narrow door into medicine. For the moment the members of our profession throughout the country will be doing a national service by pointing out to well-educated young men, who for any reason are unable to enter the army, that the country has great need of additional doctors and that the medical session commences in October.

I am, Sir, yours faithfully,

Harley-street, W., Sept. 8th, 1915. LAURISTON E. SHAW.

THE LATE LIEUTENANT-COLONEL EDWARD LAWRIE.

To the Editor of THE LANCET.

SIR,—I have noticed in some accounts of Lieutenant-Colonel Lawrie's death a statement that I was President of the Hyderabad Commission to investigate the action of chloroform. This is incorrect. I went out as the nominee of THE LANCET to direct a course of experimental work which would be likely to settle the vexed question as to whether death occurs during chloroform anæsthesia from failure of the respiration or from failure of the heart. Lawrie's great object was to ascertain the truth, and he had convinced himself by many experiments that death was always due to failure of the respiration. When I arrived at Hyderabad, with characteristic generosity Lawrie wished to make me President of the Commission, but I felt that Lawrie's position in Hyderabad, the high esteem in which he was held by the Nizam and everyone in authority, as well as the fact that it was he who had originated the idea, clearly pointed Lawrie himself out as the proper man for President. In this Sir Gerald Bomford and all the other members of the Commission thoroughly concurred.

Although I write this letter to correct an error which has appeared, I think, in more than one journal, yet I take this opportunity also of bearing witness to Lawrie's great ability and his charming personal character. It is now more than 50 years since I first knew Lawrie as a fellow student, and all through our long acquaintance I never heard of anything he ever said or did that was dishonourable to him; and if we remember that from his position he was likely to awaken jealousy in a native State where there were many ambitious men desirous of raising themselves, even though it should be at the expense of others, I think this is a remarkable testimony to Lawrie's honour. To myself he was ever a kind friend, and in the midst of all his other duties as resident surgeon at Hyderabad he was ready to help the Commission at any time, both by personal attendance and by the supply of material, which no other than Lawrie could have obtained. The late Nizam, like all other men who knew Lawrie, had perfect confidence in him, and whatever he asked the Nizam granted. Sometimes his zeal for truth caused him to see only one side of it and led him into polemics which would have been better avoided. Nevertheless, when all is said and done, Lawrie's virtues were many and his faults were few. Since the notice of his death appeared I have had several letters from old fellow students mourning his loss, as everyone must do who had the pleasure of knowing him at all intimately.

I am, Sir, yours faithfully,

LAUDER BRUNTON.

New Cavendish-street, W., Sept. 7th, 1915.

THE FORMS OF LOWER ORGANISMS AS DEPENDENT UPON MOLECULAR CONSTITUTION AND ENVIRONMENTAL CONDITIONS.

To the Editor of THE LANCET.

SIR,—I was pleased to see in your issue of to-day the letter of Dr. J. T. C. Nash, of a kind which, I venture to think, will become increasingly frequent in future. Although at present confined to bed I cannot resist the temptation of calling his attention, and that of other open-minded workers, to a series of experiments of mine conducted in 1883, an account of which was published early in 1907 in my work, "The Evolution of Life" [1] (pp. 182–189).

The results arrived at were expressed as follows (p. 189):—

> I thus found that using pure urine in *flambé* vessels, without or with liquor potassæ in different proportions, and at different incubating temperatures [113°–122° F.], I could, almost at will, procure Micrococci alone, Bacilli alone, or a mixture of these, with Streptococci more especially.

I should much like some competent bacteriologists to repeat these experiments yielding results of a kind so fundamental for their science.

Then again, I desire to call attention to an illustrated communication of mine published in *Nature* (Dec. 24th, 1914), entitled "The Production at Will of Either Fungus Germs, Flagellate Monads, or Amœbæ from the Ultimate Segments of Small Masses of Zooglœa." However incredible it may seem that minute aggregates of bacteria can be forced, under the influence of slight but definite environmental changes, to yield such organisms as are above mentioned, I may say that all these

[1] This work is now out of print and very difficult to obtain second-hand. It can, however, be obtained from Lewis's Library or that of the Royal Society of Medicine.

changes were last autumn separately demonstrated by me to three well-known bacteriologists—namely, Professor S. G. Shattock, Professor R. T. Hewlett, and Mr. Aubrey H. Drew. Neither of them attempted to contest the facts as demonstrated, and neither of them could offer any explanation other than that given by me.

I said we can only "fall back upon an explanation which is generally admitted to account for all the known forms of crystalline matter. *Molecular constitution combined with the influence of the environment* is what we have to appeal to there; and, as Herbert Spencer over and over again insisted, the forms and structures of organisms under the influence of what he termed 'organic polarity' must be dependent upon like causes." Both these sets of observations are of fundamental importance to bacteriologists.

I am, Sir, yours faithfully,

Chesham Bois, Sept. 4th, 1915. H. CHARLTON BASTIAN.

EVOLUTIONARY ETIOLOGICAL FACTORS IN DISEASE.

To the Editor of THE LANCET.

SIR,—In reference to Dr. J. T. C. Nash's letter under this title in THE LANCET of Sept. 4th, may I be permitted to remark that my studies (in Montreal) on spore-bearing and on intestinal organisms led me to conclude that the changes of type undergone may be not evolutionary at all, but cyclical. Similarly, in my work on blood cells, it seemed more correct to interpret certain phenomena of so-called development of cells as cyclical. In other words, the potential interchangeableness of certain forms of micro-organism or tissue cell is not necessarily limited to mere advance or regression.

If we could invent a more rational line of study of bacteria than that of planting on sugars, &c., we might ascertain what happens to these organisms when they get into nature; whether their dissemination on lime-stone, wood pavements, other forms of roadway, various kinds of soil, has something to do with their action on the next human "host," not forgetting the influence of chemical (?) peculiarities of the juices of that host. The most suggestive instance that occurs to one is the observation that sporoid forms of acid-fast bacilli at one time cause destructive lung disease, and apparently at another are retained by the lymph-nodes, setting up lymphadenoma. Subsequent lympho-sarcoma would be the effect of the type of tissue-reaction which the host set up against the bacillary invasion.

I am, Sir, yours faithfully,

Leeds, Sept 3rd, 1915. O. C. GRUNER, M.D.

THE RISKS OF X RAY OPERATORS.

To the Editor of THE LANCET.

SIR,—The War Office has recently issued a printed notice warning X ray operators of the risks they are running and suggesting means by which these risks can be countered. As one who has practised radiography since the discovery of X rays, I would very strongly urge the necessity of one day per week being spent in the open air. One has seen many sad cases in connexion with X ray departments, and not a few of these have been directly due to the want of ventilation and the want of daylight, and, in my opinion, the very least that a busy X ray operator should expect is one day per week in which to make up for the unhealthy conditions under which he works during the other six. I feel convinced that, unless this precaution is taken, there will be many more disasters which the suggestions on the War Office circular will in no way obviate. I am informed by radiographers who are working seven days a week that not only do they suffer from the inevitable want of ventilation in their departments, but they get a mental depression which alone unfits them for carrying out their duties.

I am hoping that those who have the welfare of the radiographer sufficiently at heart to draw up this circular will further consider the matter on the lines I have suggested. It will certainly in the end be better for all concerned.

I am, Sir, yours faithfully,

EDWARD W. H. SHENTON,
Senior Radiographer, Guy's Hospital; Radiographer, Hampstead Military Hospital.

Sept. 6th, 1915.

THE STERILISATION OF ALBUMINOUS CULTURE MEDIA BY ETHER.

To the Editor of THE LANCET.

SIR,—I should like to add my experience of the method of sterilising albuminous fluids by means of ether as described recently in THE LANCET by Dr. Fildes and Dr. Rajchman. Thanks to the courtesy of these authors I have been able, during the last six months, to test the method on several litres of horse serum, a litre of ascitic fluid, and small quantities of other albuminous fluids, and with ordinary precautions have experienced no difficulty in attaining sterility. It is obvious that the method is not intended to be used to sterilise serum heavily infected with spores, and the criticisms of Captain T. G. M. Hine in THE LANCET of July 31st are therefore beside the point.

My object in writing to you is to encourage other workers to employ this satisfactory method of obtaining sterile serum, who might be prevented, by the adverse and not quite apposite criticism of Captain Hine, from giving the method a fair trial.

I am, Sir, yours faithfully,

W. E. BULLOCK,
Temporary Lieutenant, R.A.M.C.

Woolwich, Sept. 6th, 1915.

To the Editor of THE LANCET.

SIR,—Replying to the letter of Dr. Paul Fildes and Dr. L. W. Rajchman in your issue of Sept. 4th, I wish to say that they are mistaken in suggesting that I did not follow their method when blood was drawn from the animal. This I did most accurately, and I had failure with this as well as with the commercial serum. Perhaps I put the method to a severer test than they anticipated, but I will try it again, paying more attention to the sterility at the source. I am, Sir, yours faithfully,

T. G. M. HINE,
Temporary Captain, R.A.M.C.

Royal Army Medical College, Sept. 6th, 1915.

AN AMENDED MEDICAL CURRICULUM.

To the Editor of THE LANCET.

SIR,—With reference to a letter which you were good enough to publish some weeks ago on a proposal to reduce the medical curriculum from five to four years during the progress of the war (and it may be a few years after it has stopped) I would ask you to print the enclosed extracted from the *Scotsman* of August 28th:—

A striking example of the spirit of self-sacrifice to the interests of the Empire which is being displayed generally

by the overseas Dominions in the present crisis is that just given by the medical universities of the Australian Commonwealth. The universities of Melbourne and Adelaide have made arrangements allowing their medical students who have joined the colours to continue their courses at the close of hostilities without losing anything in the matter of time. Sydney provides an even more notable illustration of this spirit. The determining factor in the case was the attitude of the students themselves. Chafing under the delay in the curriculum—necessary in ordinary times—which seemed likely to prevent them from taking an active medical part with their comrades at the front, they presented a memorial to the Senate, offering, on behalf of the greater number of the present fifth-year men, to endeavour to qualify earlier so as to be able to get away this year, while the whole of the fourth-year students undertook to submit to a more strenuous course of study in order that they might be qualified early next year. The offer being brought before the Faculty of Medicine, that body unanimously decided that while nothing should be omitted from the regular curriculum in any subject, the whole of the work might be carried through by concentrating it into a shorter period. In order to do this, the students have expressed willingness to go without the normal vacations, and the teachers have declared their readiness to sacrifice their personal convenience for the purpose of meeting the students half way. All the Australian medical universities are well represented at the front. Sydney, in particular, has 154 graduates on active service, and of 84 students in the present fifth year as many as 54 have offered to go this year as soon as they have qualified. Then of 75 fourth-year students, 65 have given an unconditional undertaking of service at the front in 1916. The whole movement has resulted in a serious shortage of doctors for resident posts in hospitals, and the same is true of the nursing profession.

I am, Sir, yours faithfully,

Dingwall, N.B., Sept. 6th, 1915. WILLIAM BRUCE.

WAR ECONOMY AND DIET.

To the Editor of THE LANCET.

SIR,—Medical practitioners who are asked how best food bills may be cut down without detriment to family health will be vastly helped by such a common-sense article as that by Dr. A. K. Chalmers on food economy in war published in your issue of Sept. 4th. It is, indeed, just now a question of some importance as to whether through a false economy diet is not being so altered or restricted in many hitherto comfortable middle-class households as to threaten seriously the well-being of their inmates. And this not so much through reduction in quantity or quality as from an absurd notion that it is uneconomical to serve very tasty meals at the present time. Instances are far from uncommon where plain but sufficiently nutritious meals are consistently served up in the least tempting way, with a result that a minimum is eaten by individuals. Economy which concentrates on divesting the table of every appetising feature is surely the falsest economy in the long run. There is a psychology of the dining-room that deserves more attention, and most of us depend far more than we are aware on palatability rather than on hunger for our stimulus to eat, so that where meals are made as uninteresting as possible through a foolish belief that a graceful repast is luxurious and therefore wasteful—an utterly erroneous association of ideas—malnutrition may readily follow with ultimately a long doctor's bill.

In the interests of public health it is to be hoped that family physicians will, whenever opportunity occurs, seriously warn those who hold such false beliefs that they are following a demonstrably unwise course.

I am, Sir, yours faithfully,

Harley street, W., Sept. 5th, 1915. EDWIN L. ASH, M.D.

Obituary.

THOMAS GLOVER LYON, M.D. CANTAB., M.R.C.P. LOND.,

LATE SENIOR PHYSICIAN TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.

WE regret to announce the death on August 31st, at his country house at Ashtead, of Dr. Thomas Glover Lyon, at the age of 60.

Thomas Glover Lyon was born in 1855, the son of Washington Lyon, with whom he later coöperated in well-known work with regard to steam disinfection and sterilisation. He received his school education at the Bruce Castle School, Tottenham, proceeding to Emmanuel College, Cambridge, with a scholarship. At Cambridge he graduated as a wrangler, and having elected to join the medical profession became a student at St. Thomas's Hospital. He obtained the diploma of M.R.C.S. Eng. in 1883, and that of L.R.C.P. Lond. in the following year, graduated in medicine at Cambridge in 1885, and took the Membership of the Royal College of Physicians of London in 1886. After holding the junior posts at St. Thomas's Hospital, he was elected assistant physician at the City of London Hospital for Diseases of the Chest, of which hospital he eventually became senior physician, doing excellent clinical work at the institution and using his knowledge and experience in a very informing manner for the profession.

His inventive turn of mind and mathematical equipment were both shown in his professional work. He took from the first a great interest in what may be called the statistical side of pathology and hygiene, and this is well illustrated by his various contributions to THE LANCET and by the subject-matter of addresses which he delivered in different professional capacities. To our pages he contributed articles on phthisical family history in relation to life assurance, on the care of consumptive patients, and on the systems of efficient ventilation, while in our correspondence columns his views on statistical estimates of population and duration of life were expressed on occasion with great clearness. To hygienists he was well known as a pioneer of the methods of ventilation known as the Glover-Lyon system, and on the subject of atmospheric hygiene he made many communications to public bodies such as the Royal Institute of Public Health and the Royal Sanitary Institute, writing articles also in the *Journal of Preventive Medicine*, the *Journal of the Institute of Actuaries*, and the Transactions of various learned bodies. His views with regard to ventilation were not in accord with those distinguished observers who consider that there is no evidence that the traces of organic material found in "close" air are harmful. He allowed that the popular and widely accepted view that CO_2 in deleterious quantities as usually found in crowded rooms was held in exaggerated fashion, but he could not agree that the presence of organic material in the air had no harmful influence upon those subjected to it. He relied for his opinion largely on the sensations experienced by those exposed to the atmosphere of a "close" room, but he admitted that chemical knowledge did not enable us to state that certain substances thrown off by the skin or in respiration were of distinct toxic value. We are now beginning to believe that it is chiefly the physics of the air rather than its chemistry that govern its healthy state.

He was one of the founders of the Life Assurance Medical Officers' Association, a society of which in due time he became president, and he made many contributions to its Transactions. He was also president in due course of the Hunterian Society, and chose as his presidential address a subject dictated alike by his interest in the statistics of mortality, in practical hygiene, and in clinical medicine connected with diseases of the chest—viz., the after-care of consumptives. This address, which was delivered in 1912, created some sensation because of its open and not too well-founded denunciation of specific remedies, the suggestion that the use of tuberculin in the treatment of consumption had no justification as a therapeutic agent being a position which it was felt could not be supported. He was before his time in this same address, when he insisted that sanatoriums must not be treated as panaceas for consumption, for he recognised, at a date when communities believed that the whole question of the eradication of consumption was one of building lots of sanatoriums, that sanatoriums were but one factor in the treatment of tuberculosis, and that if this factor were abused its benefits would fail.

It will be seen from this survey of Dr. Thomas Glover Lyon's career that the medical profession has lost in him an able, energetic, and useful member.

RALPH W. JOHNSTONE, B.A., M.D. DUB., D.P.H.,
MEDICAL INSPECTOR OF THE LOCAL GOVERNMENT BOARD.

Dr. Johnstone, whose death we briefly announced in our last issue, was one of the senior medical inspectors of the Local Government Board. The son of a resident Irish magistrate, he was educated at Trinity College, Dublin, and, after a short period in private practice, was appointed a member of the Medical Department of the Local Government Board in the year 1898, where he at once came under the influence of Sir William H. Power, at that time the Board's assistant medical officer. Sir William Power's reputation as an epidemiologist and teacher is too well known to need comment. Dr. Johnstone proved a worthy pupil of such a master, and from the time of his appointment until his death his work has maintained the high reputation of his predecessors in the central public health service of this country.

In 1904 Dr. Johnstone spent some months in Malta as a member of the commission appointed jointly by the Admiralty, the War Office, and the Civil Government of Malta for the investigation of Mediterranean or Malta fever, and in this capacity he contributed a valuable report on the general sanitary circumstances of the Maltese islands with special reference to the prevalence of Malta fever therein. Dr. Johnstone acted as Chief Technical Delegate for Great Britain at the International Sanitary Conference of Paris, 1911–12, and as British Plenipotentiary signed the International Sanitary Convention of 1912 on behalf of the British Government. He also acted during the last three years as British Delegate of the Office International d'Hygiène Publique, in which capacity he did good work.

Dr. Johnstone's name will be always associated with two aspects of preventive medicine. In the first place, he demonstrated the diffusion of typhoid fever in certain districts of England by typhoid carriers. His report on an enteric fever outbreak at Folkestone, which was issued in 1910, is a very valuable contribution to the literature on this subject. In the second place, he did very excellent work in connexion with an inquiry into venereal disease in this country, and his report to the Local Government Board on this subject formed the basis of the work now being done by the Royal Commission on Venereal Diseases. It has always seemed to us unfortunate that Dr. Johnstone, in view of his extensive and special knowledge of these diseases, acquired as a result of much painstaking investigation, was not appointed secretary of the Royal Commission on Venereal Diseases; this appointment was generally expected, and the choice of a layman for the position was certainly puzzling.

There has been a remarkable mortality during the last 25 years in the medical staff of the Local Government Board, 15 members having died in that period. Of these, nine died in harness, six of them in the "forties," whilst yet in the zenith of their power. The Public Health Service could ill afford to lose a man like Dr. Johnstone, who, like his colleagues alluded to above, has been taken all too soon from the sphere in which his services were so much appreciated.

THE LATE DR. F. W. SAUNDERS.—We regret to announce the death of Dr. Frederick William Saunders, of Donnington Hurst, Newbury, Berkshire, who has died at Hythe, aged 52. He was educated at Cambridge and St. Bartholomew's Hospital, and became a Member of the Royal College of Surgeons of England in 1889 and a Bachelor of Medicine at Cambridge in the following year. He had been medical superintendent of Luxor Hospital for Natives of Egypt, and was the author of "Stepping Stones to Health on the Nile," and some scientific notes in our columns.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE WEEK'S SUBSCRIPTIONS.

THE subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:—

	£	s.	d.
Leicester Pharmaceutical Association (per Mr. C. J. Avery)	15	7	6
Mr. A. Chapman	0	11	8
Mr. F. A. Williamson ...	0	7	6
Anonymous	1	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

CHOLERA IN GERMANY. — Telegrams from Switzerland, Holland, Italy, and Spain agree in announcing the presence of cholera in Germany and Austria, but the various reports are not identical in details. There must be risk of infection from cholera for the German troops on the eastern front, and precautions against the disease have from the beginning of the war been taken rigorously at Breslau.

EDINBURGH ROYAL INFIRMARY.—At a meeting of the managers of the Edinburgh Royal Infirmary held on Sept. 6th, Mr. J. M. Cotterill presiding, it was stated that the patients in hospital at last return were 949. The number admitted during the last five weeks amounted to 1232, making a total of 2181. The total removed during that period was 1303, the total remaining being 878. The actual number of new cases treated during the past five weeks at the various out-patient departments was 3834. In addition to above there are 70 patients resident in the Convalescent House at Corstorphine. The contributions for the past five weeks were reported to amount to £1312.

The War.

THE CASUALTY LIST.

THE following names of medical men appear among the casualties announced since our last issue:—

Killed.

Lieutenant-Colonel C. E. Thomas, New Zealand Army Medical Corps, who was educated at Middlesex Hospital, was a Surgeon-Captain in the South Canterbury Infantry Volunteers, and served in the South African War, receiving the Queen's medal and three clasps.

Died of Wounds.

Lieutenant T. A. Peel, R.A.M.C., attached to the 5th Battalion Dorset Regiment.

Died.

Surgeon F. J. Humphrys, R.N., Armoured Cars.

Wounded.

Lieutenant T. C. Clarke, M.B., R.A.M.C., 1st West Lancs. Field Ambulance (T.F.).

Lieutenant C. H. K. Smith, M.B., R.A.M.C., 3rd Lowland Field Ambulance (T.F.).

Lieutenant H. E. MacM. Wall, R.A.M.C.

Lieutenant J. C. Young, M.D., R.A.M.C.

Lieutenant-Colonel A. R. Wilson, M.D., R.A.M.C., 3rd Welsh Field Ambulance (T.F.).

Major L. P. Brassey, Indian Medical Service.

Lieutenant R. J. Batty, R.A.M.C., attached to the 10th Battalion Durham Light Infantry.

Lieutenant J. Brown, R.A.M.C.

Lieutenant L. H. Skene, M.B., R.A.M.C.

Missing.

Captain A. P. Smith, R.A.M.C.

Missing, believed Drowned through the Loss of the "Royal Edward."

Lieutenant-Colonel J. H. Dauber, M.B., F.R.C.S., R.A.M.C., East Anglian Casualty Clearing Station.

Lieutenant T. Hayhurst, M.B., R.A.M.C., 1st East Lancs. Field Ambulance (T.F.).

Major J. Mowat, M.B., R.A.M.C., East Anglian Casualty Clearing Station (T.F.).

Captain C. B. Marshall, M.B., R.A.M.C., 3rd East Lancs. Field Ambulance (T.F.).

THE HONOURS LIST.

The Distinguished Service Order has been conferred upon—

Captain Kingsmill William Jones, M.D., R.A.M.C. (Special Reserve), attached to the 1st Battalion, East Kent Regiment.

For conspicuous gallantry and devotion to duty at Hooge. During the entire night of August 9th–10th, 1915, and the whole of the following day and night, he was attending to and evacuating wounded from the front trenches, time after time exposing himself to shell and rifle fire. He was twice slightly wounded, but stuck to his work with unflagging energy. It was entirely owing to Captain Jones that the crater was successfully evacuated of wounded.

The Military Cross has been conferred upon—

Temporary Lieutenant Thomas Lewis Ingram, R.A.M.C., attached 1st Battalion King's (Shropshire Light Infantry).

For conspicuous devotion to duty and energy at Hooge. He was evacuating wounded from the front trenches almost without cessation the entire nights of August 9th and 10th, 1915, and his indomitable energy and resource were the means of saving the lives of many severely wounded officers and men. He has previously done consistently good work.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men are to be added to our lists of those who have fallen during the war:—

Private P. E. Chapman, 8th Hants Regiment (T.F.), eldest son of Dr. P. M. Chapman, of Carfax, Hereford.

Second Lieutenant O. Whitaker, Royal Garrison Artillery, eldest son of Mr. J. Smith Whitaker, Vice-Chairman of the National Health Insurance Commission (England), and formerly Medical Secretary of the British Medical Association. Second Lieutenant Whitaker's name appeared in the Honours List published on the same day as the notice of his death, he being awarded the Military Cross for "conspicuous gallantry on the Yser Canal on August 14th."

Second Lieutenant S. W. Thacker-King, 4th Battalion Cheshire Regiment, son of Dr. R. Thacker-King, of West Kirby, Cheshire.

Private D. T. Turnbull, 1st King's Own Scottish Borderers, son of Surgeon Major-General P. S. Turnbull, I.M.S. (retired), of Edinburgh.

THE WAR EMERGENCY COMMITTEE.

The following statement is issued by the secretaries of the War Emergency Committee, Mr. N. Bishop Harman and Dr. Alfred Cox, showing the progress of the Committee's work:—

The campaign for the recruiting of commissioned officers for the Royal Army Medical Corps is in full swing. Men are being urged to take immediate service where possible or at some specified date if they cannot go at once. The scheme of enrolment is now worked out. All men of military age are earnestly requested to enrol themselves with the Committee as willing to take service in case of special emergency. Forms have been prepared which can be had on application. These forms provide spaces in which the doctor can enter the particular difficulty which prevents his volunteering forthwith. These difficulties will be taken into consideration by the Committee and men on this roll will only be called upon in case of special necessity, and each case will be considered on its merits according to the statements made by the signatory of the form. It is particularly requested that medical officers to municipal authorities who have medical men of military age on their staff will encourage these members to fill up these enrolment forms. They will be doing considerable service by this. The Committee will have knowledge of all the available material, and the statements made on the form of enrolment indicating the particular difficulty which prevents immediate volunteering will ensure that they do not lose these members of their staff except in case of special necessity.

Age limits.—This week the Committee has received a communication from the War Office concerning the age limits for medical officers, and it shows that the somewhat varied statements of the several commands have now taken definite and equal shape. Medical officers for home service only will not be commissioned over the age of 55 years. Men for foreign service will now be accepted up to the age of 45 years, provided they are in every way fit. One important point arises out of the limitation of the age for commissions for home service to 55 years. It means that men over this age who are fit for additional work or some different form of medical practice to their present can best serve their country by doing the work of some younger man and releasing him for foreign service.

The employment of men of military age for foreign service in home posts.—The Committee have had under consideration the undesirability of medical men of military age for foreign service filling home military posts, and they have communicated with the Director-General of the Army Medical Service on the subject. His deputy has replied as follows:

"I am to say that the question of men of military age doing military work at home is under our serious consideration, and steps have already been taken to prevent men who are under 40 being continuously employed in our regular military hospitals in this country. The question is also being taken up with regard to Territorial Force general hospitals and voluntary aid hospitals, and it is hoped that a satisfactory arrangement will be arrived at. We are in every way discouraging younger men who are physically fit for active service from engaging for home service only."

THE PREVENTION OF TRENCH FROST-BITE.

We publish in another column a very interesting article on the Pathology of Trench Frost-bite, by Professor J. Lorrain Smith and Professor James Ritchie, of the University of Edinburgh, and Dr. James Dawson, of the Laboratory of the Royal College of Physicians of Edinburgh. The investigation was undertaken at the request of the Medical Research Committee (National Health Insurance), and the resulting recommendations for the prevention of one of the most serious disabilities which winter armies have to undergo will assuredly receive the earnest attention of the authorities. The investigators had excellent opportunities of examining clinically a series of cases of trench frost-bite, while in the laboratory at the Royal College of Physicians of Edinburgh experiments were made in illustration of the phenomena observed. In the end eight practical recommendations have been made as the outcome of the research. Massage of the feet before going to the trenches and a shortening of the time in the trenches when symptoms are beginning to be felt stand out as the most essential measures of prevention. "Careful attention," the observers say, "should be given to anything which may constrict the blood-vessels," and thereupon follows the suggestion that leggings should be substituted for puttees, as providing more warmth without constriction of the limb. That such a view might be expressed by those engaged upon this research into the causes and prevention of trench frost-bite appears to have been known, for we have read definite statements in the press that the War Office has decided to abandon puttees and to adopt long boots as part of the equipment of soldiers in the trenches, retaining puttees for home service and marching purposes. No official announcement has, we understand, yet been made to this effect.

THE ROYAL ARMY MEDICAL CORPS: AN EXHIBITION OF APPARATUS.

With the concurrence of Sir Alfred Keogh, K.C.B., Director-General of the Army Medical Service, an exhibition of the various forms of apparatus that have been found most useful in the treatment of fractures met with in the war will be held in the house of the Royal Society of Medicine, 1, Wimpole-street, W., from Oct. 7th–11th inclusive. The apparatus will be shown by officers of the Royal Army Medical Corps serving in France, as well as by those attached to the base hospitals in England. The bulk of the apparatus will be brought over for the purpose from Boulogne, and Royal Army Medical Corps officers will accompany it for the purpose of demonstrating the use of the various appliances. Sir Almroth Wright will during the exhibition demonstrate his recent researches in the drainage of wounds. Invitations to exhibit will be issued to the consulting surgeons of the various commands, and officers desiring to send exhibits should communicate with the consulting surgeon for their command.

VACANCIES FOR MEDICAL OFFICERS.—A medical officer is wanted for the 3/1st Home Counties Field Ambulance, Royal Army Medical Corps, to complete the establishment. He must undertake foreign service if necessary. Applications should be made to Captain Charles Killick, officer commanding 3/1st Home Counties Field Ambulance, Royal Army Medical Corps, Smith's Lawn Camp, Windsor.

Two medical officers are urgently required for service with the 2nd Line, Shropshire Royal Horse Artillery and Cheshire Yeomanry. Pay and allowances as in the Regular Army, also outfit and camp kit grants. Full particulars can be obtained on application to Lieutenant-Colonel D. C. Leyland Orton, senior medical officer, 2nd Line, Welsh Border Mounted Brigade, The Camp, Morpeth, Northumberland.

THE ANGLO-RUSSIAN HOSPITAL.—Our readers will learn with pleasure of the intention to send out from this country a complete hospital to assist our gallant allies the Russians, with whose army it is known there is an insufficient supply of medical officers and, save at the important base centres, an inadequate provision of hospital accommodation. The preliminary steps for despatching an Anglo-Russian hospital, to be employed either behind the fighting line or as a stationary hospital, have now been taken, and the personnel and material will shortly start for the Eastern front, working with the Russian Red Cross under the direct ægis of the Russian War Office. The hospital will have 200 beds, and the medical staff proposed is as follows: A commandant, a senior consulting surgeon, an operating surgeon, a physician, two assistant surgeons, who will on occasion act as anæsthetists, a radiographer, and a bacteriologist. The personnel will also comprise a matron, 22 nurses, eight probationers, a clerk, a storekeeper, two artificers, and an orderly sergeant. The names of the medical staff will shortly be announced. The Automobile Club has undertaken to be responsible for providing a fleet of motors. Her Majesty Queen Alexandra is the patroness, and Lord Cromer is the president of the hospital. Among the vice-presidents are the Archbishops of Canterbury and York, Mr. Asquith, Mr. Arthur Balfour, Lord Kitchener, Sir Edward Grey, and other members of the Cabinet; also the Lord Mayor of London, Lord Weardale, and Sir William Mather. Lord Cheylesmore is chairman of the executive committee, Sir Starr Jameson vice-chairman, Lady Muriel Paget honorary secretary, Sir Owen Philipps honorary treasurer, Mr. Oliver Williams assistant honorary secretary, and Messrs. Deloitte, Plender, Griffiths, and Co., honorary auditors. It is hoped that sufficient funds may be at once raised to equip and maintain for one year a hospital of the indicated size, although the details of the scheme may have to be varied so as to accord with the fields of usefulness in which the Russian authorities consider help may best be utilised. For this purpose it is desired to raise not less than £30,000 to ensure the efficient equipment in all details, including an operating theatre, with all the necessary surgical, medical, and other appliances, and to provide a sufficient sum for the maintenance of the hospital, which maintenance may be materially helped by the promise of monthly subscriptions over a period instead of a single donation. The committee have already raised a considerable sum of money through the prompt response to their appeal, and Her Majesty the Queen has sent a donation for the hospital and has given a contribution of equipment from her Needlework Guild. The British Red Cross and many war hospital supply depôts have freely assisted. Many generous gifts in kind have also been received from great manufacturing firms. Although the Anglo-Russian Hospital has not yet been publicly presented to the Russian Red Cross, it has been intimated to the committee that the gift will be appreciated, for Sir George Buchanan, British Ambassador at Petrograd, has written to say that "the Russian Red Cross warmly welcomes the proposal, and authorises me to say that it is not so much money but a hospital equipped and staffed that it needs at the present moment." All communications should be addressed to the Anglo-Russian Hospital, 116, Victoria-street, Westminster, S.W.

SWITZERLAND AND INVALID PRISONERS.—A Swiss correspondent writes: "A group of invalid prisoners belonging to the various belligerent countries, following an agreement reached between the British, French, German, and Austrian Governments on the one hand, and the Swiss Federal Council and the papal delegate at Berne on the other, are expected to reach Switzerland during the present month. The whole scheme has been carefully arranged and it is expected that the group referred to above will consist of soldiers who are suffering from tuberculosis, and they will be grouped according to their nationalities, and will then be conveyed to the principal climatic stations of Switzerland—Leysin, Montana, Davos, Arosa, &c. The prisoners will be accorded as much liberty as possible, and permission for their families to stay with them will be granted. The prisoners thus interned will be requested to give their parole not to attempt to escape, and it is expected that their respective Governments will also remind them of the necessity of following the various regulations laid down by the Swiss authorities. The Swiss press display great enthusiasm for a project which is likely to prove of much value to men who have served their countries valiantly on the field of battle."

HOSPITAL TRAINS: HOW THEY ARE SAVING SOLDIERS' LIVES.—An interesting illustrated pamphlet has been published by the British Red Cross Society and the Order of St. John of Jerusalem describing hospital trains and pointing out that it was not until the South African War that this country really appreciated their necessity or realised their value. The experience gained in construction 15 years ago has been turned to good account to-day. Whereas, however, the old train was about 250 feet long and accommodated 74 patients, its modern successor has a total length of 700 feet—nearly one-seventh of a mile—and can accommodate as many as 450 patients. This splendid train was constructed by the Birmingham Railway Carriage Company, under the personal direction of Sir John Furley, with the practical assistance of Mr. William J. Fieldhouse. The personnel, says the compiler of the pamphlet, may be called the heart and motive power of a hospital train; they comprise: 1. An officer commanding, usually of the rank of major of the Royal Army Medical Corps. He is responsible for the train and for all and everything on board. Power of organisation, a sense of method, and natural sympathy on the part of the officer commanding combine to effect the smooth working and happy ending of each trip. He is responsible for the loading and unloading of the train, the comfort of the wounded, and the control of the personnel in its multifarious duties. 2. The medical staff, usually three in number, one of whom is appointed chief medical officer. Each officer is responsible for the particular wards allotted to his care. 3. The nursing staff, comprising a matron and seven or more sisters, who may be placed in charge of one or more wards. 4. The non-commissioned officers and orderlies, the cooks, the dispenser and storekeeper, and the clerk. Each has his duties, and often enough may be on duty all night many times in succession. The pharmacy car contains an operating theatre, a compartment fitted with the necessary drugs and medical appliances, an office for the doctors, and a store for linen. The staff car provides day and night accommodation for the doctors and nurses. In the dispensary is found a complete collection of drugs, lotions, and ointments, in addition to huge quantities of dressings and first-aid equipment. It is open day and night, and the dispenser is permanently quartered there, so that he is always at hand to make up prescriptions or issue material for the doctors. Everything is ready for immediate use in any quantities and the stock must be kept constantly replenished.

EMOTIONAL SHOCK AS A RESTORATIVE.—An Italian correspondent writes as follows: "Not only the organs of special sense, the eye-sight and the hearing, suffer severely from the flash, the detonation, the tension, physical and mental, of the artillery fire at the front—suffer, moreover, permanently though oftener only temporarily—but speech itself has been paralysed by the *ensemble* of those conditions. A typical example of this phenomenon is just reported from the war zone on the Austro-Italian frontier, where a lieutenant of artillery, Francesco Ummarino by name, was admitted to hospital, not, indeed, wounded in body or limb, but stricken absolutely dumb by the violent explosion at his feet of an Austrian grenade. For several days he could only indicate his feelings or his wants by manual signs, till King Victor Emmanuel arrived unexpectedly at the hospital on one of his numerous visits to the various seats of medical activity. No sooner had His Majesty appeared in the ward than Lieutenant Ummarino, an impressionable Neapolitan, started up exclaiming, 'Il Re, Sua Maestà!' (His Majesty the King), and burst into an agony of tears. The emotional shock, so sudden in its impact, had restored the paralysed function of the tongue after more than a week's suspension. The medical staff, one of whom has put the incident on record, in common with others in attendance in the ward, were visibly affected, while the King addressed the young officer in words of kindly congratulation and encouragement, obviously moved at the happy issue of his opportune intervention."

ADMINISTRATIVE AUXILIARIES IN THE VOLUNTARY AID DETACHMENTS.—All members of Voluntary Aid Detachments having special qualifications such as cooks (trained), domestic economists, typists, bookkeepers, laboratory workers, dispensers, and clerks (especially those with experience of army forms and methods) are invited to send their names in to their commandant for transmission to headquarters as soon as possible. Their services will be required in the immediate future. All women with qualifications for such work, who are not already members, are advised to join Voluntary Aid Detachments in order to be able to help. Full particulars and terms of service can be obtained on application to the Voluntary Aid Detachment Selection Board, Devonshire House, Piccadilly, London, or to the St. John Ambulance Association, St. John's Gate, Clerkenwell, London.

A FRENCH CANADIAN HOSPITAL.—Sir Robert Borden, the Prime Minister of Canada, on the occasion of his recent visit to France, offered to the President of the French Republic, on behalf of the Canadian Government, the provision and equipment of a hospital for French wounded. The offer was gratefully accepted, and the hospital is already in England. The staff of French Canadians, with Colonel A. Mignault as commandant, will shortly establish themselves in tents upon French soil, prepared to deal with 500 patients.

FROST-BITE IN THE GERMAN ARMY.—The August number of the *Military Surgeon* quotes a German article entitled "Frost-bite of the Feet at Times Free from Frost," which discusses the trench-foot which caused so much suffering amongst the armies last winter. The author had seen 14 cases at a time of mild weather, and in all but one amputation of the leg or legs was necessary. Prophylaxis consists, in the German view, in wearing large unshrunken boots; boots shrunken by drying at fires must not be worn. The author considers that hot air may be useful in treatment. He records that in one of the cases two toes would have been certainly lost if the ordinary routine had been employed, but only slight skin necrosis and formation of vesicles resulted under hot-air treatment for one or two hours twice daily.

A NEW AMBULANCE TRAIN.—A new ambulance train constructed by the Caledonian Railway Company to the order of the War Office has just been completed. It is a permanent hospital train, consisting of ambulance coaches fitted with cots, coaches for the medical officers and nurses, an operating theatre, a dispensary, and a kitchen—16 carriages in all. It represents throughout the latest developments of construction.

THE SALISBURY-ROAD MILITARY HOSPITAL, PLYMOUTH.—Colonel F. B. Mildmay, M.P., has presented a fully equipped "recreation hut" to the Salisbury-road Military Hospital, Plymouth, and this was formally opened a few days ago by Major-General A. P. Penton, the Garrison Commander.

IT is announced that the joint committee of the British Red Cross Society and the Order of St. John are arranging to make a special appeal to the public throughout Great Britain and Greater Britain on Thursday, Oct. 21st, the anniversary of the amalgamation of the two societies for the purposes of the war

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

GIBSON, C. G., M.B., C.M. Edin., has been appointed Acting Deputy Medical Officer of Health for Launceston Rural District and No. 8 District of the Launceston Board of Guardians.

HAMILTON, G. H. ROSS, M.B. Tor., M.C.P. & S. Ont., has been appointed Resident Surgical Officer to the Swansea General and Eye Hospital.

MESSER, WILLIAM, M.B., Ch.B. Edin., has been appointed Honorary Assistant Physician to the Royal Infirmary, Bradford.

THOMSON, RUBY, M.B., Ch.B. Edin., has been appointed Temporary Chief Tuberculosis Officer for South Staffordshire.

WATSON, WILLIAM NORMAN WEST, M.D. Glasg., Ch.B., Lieutenant, R.A.M.C. (T.), has been appointed Honorary Assistant Physician to the Royal Infirmary, Bradford.

WOODMAN, MUSGRAVE, M.S. Lond., F.R.C.S. Eng., Captain, R.A.M.C. (T.), has been appointed Assistant Surgeon to the Birmingham and Midland Ear and Throat Hospital.

WRANGHAM, WILLIAM, M.D. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Physician to the Royal Infirmary, Bradford.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

ALTON, HANTS, LORD MAYOR TRELOAR CRIPPLES' HOSPITAL.—Assistant Resident Medical Officer.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, fire, light, and attendance.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with residence, board, &c.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—Senior House Surgeon, unmarried. Salary £140 per annum, with War Bonus at rate of £60 per annum, with board, residence, and laundry. Also Junior House Surgeon and Assistant House Surgeon, unmarried. Salary £80 per annum, with War Bonus of £60 per annum, with board, residence, and laundry.

BRISTOL, CITY AND COUNTY OF.—Temporary Acting Tuberculosis Officer Salary at rate of £500 per annum.

BRISTOL ROYAL INFIRMARY.—Resident Obstetric and Ophthalmic House Surgeon for six months. Salary at rate of £120 per annum, with board, apartments, and laundry. Also Dental House Surgeon for six months. Salary at rate of £120 per annum, with apartments, board, and laundry.

BUXTON, DEVONSHIRE HOSPITAL, Derbyshire.—Assistant House Physician for six months. Salary at rate of £100 per annum, with apartments, board, and laundry.

CAMBRIDGESHIRE ASYLUM, Fulbourn, near Cambridge.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, washing, and attendance.

CARDIFF, KING EDWARD VII.'s HOSPITAL.—House Surgeon for six months. Salary at rate of £140 per annum, with board, residence, and laundry. Also Student-Dressership for three months. Salary at rate of £26 per annum, with board, residence, and laundry.

DEWSBURY, COUNTY BOROUGH EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary at rate of £300 per annum.

DUMFRIES, CRICHTON ROYAL MENTAL HOSPITAL.—Temporary Assistant Physician, unmarried. Salary £300 per annum, with apartments, board, laundry, and attendance.

GENERAL LYING-IN HOSPITAL, York-road, Lambeth.—Resident Medical Officer for three months.

GLOUCESTERSHIRE JOINT COMMITTEE FOR TUBERCULOSIS.—Assistant Tuberculosis Medical Officer. Salary £350 per annum.

GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon. Salary £5 5s. per week, with board, lodging, attendance, and washing.

HARROGATE INFIRMARY.—Resident House Surgeon. Salary £100 per annum.

HORNCASTLE UNION.—Medical Officer and Public Vaccinator. Salary about £135 per annum.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish-street, W.—Bacteriologist.

LANCASTER COUNTY ASYLUM.—Temporary Assistant Medical Officer. Salary 6 guineas per week, with board, apartments, washing, and attendance.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LIVERPOOL, BROWNLOW HILL INSTITUTION.—Resident Assistant Medical Officer. Salary at rate of £300 per annum, with rations, &c.

LIVERPOOL INFIRMARY FOR CHILDREN, Myrtle-street.—Two Resident House Physicians and Resident House Surgeon for six months. Salary £30 in each case, with board and lodging.

LIVERPOOL POOR-LAW INSTITUTION AND INFIRMARY.—Assistant Resident Medical Officer. Salary £250 per annum, with board, washing, and apartments.

LIVERPOOL STANLEY HOSPITAL.—Resident House Surgeon.

LONDON HOMŒOPATHIC HOSPITAL, Great Ormond-street, W.C.—Two Resident Medical Officers. Salary at rate of £80 per annum, with board, apartments, and laundry.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and washing.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Senior House Surgeon for six months. Salary £150 per annum, with board, residence, and laundry. Also Female Resident Surgeon. Salary £120 per annum, with board, apartments, and laundry.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C.—Resident Medical Officer. Salary £100 per annum, with board and residence. Also Female Superintendent. Salary £120 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—District Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

REETH UNION AND RURAL DISTRICT COUNCIL, Yorkshire.—Medical Officer (Muker District) and Medical Officer of Health (whole District). Salary £45 and £50 respectively.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Resident Medical Officer to Military Block.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square.—Recruits for the Sanitary Section of the 67th (Home Counties) Division.

ST. ANDREW'S HOSPITAL, Dollis Hill, London, N.W.—Resident Medical Officer. Salary £50 per annum, with army pay and hospital allowances.

ST. MARY, ISLINGTON, INFIRMARY, Highgate Hill, N.—Resident Junior Assistant Medical Officer for six months. Salary at the rate of £140 per annum.

ST. MARYLEBONE WORKHOUSE.—Visiting Medical Officer. Salary £235 per annum.

SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £120 per annum, with board, residence, and laundry.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Surgeon. Also House Physician. Salary £200 and £150 per annum respectively, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—House Surgeon. Salary £150 per annum, with residence, board, and washing.

SWANSEA EDUCATION COMMITTEE.—Two Temporary Assistant School Medical Officers. Salary in each case £300 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House Surgeon, unmarried. Salary £120 per annum, with residence, board, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Resident Medical Officer. Salary £160 per annum. Also House Physicians and House Surgeons. Salary £120 and £100 per annum respectively, with board, residence, and washing.

WESTMINSTER GENERAL DISPENSARY, 9, Gerrard-street, Soho, W.—Resident Medical Officer. Salary £120 per annum, with rooms, gas, coals, and attendance.

WESTMORLAND SANATORIUM, Meathop, Grange-over-Sands.—Second Assistant to Medical Superintendent. Salary £200 per annum, with board and laundry.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.

WORCESTER COUNTY AND CITY ASYLUM.—Assistant Medical Officer. Salary £250 and all found.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Rothes, in the county of Elgin.

Births, Marriages, and Deaths.

BIRTHS.

ATKINS.—On August 24th, at Sixpenny Handley, Dorset, the wife of F. R. Lowth Atkins, M.R.C.S., L.R.C.P., of a son.

PAGE.—On Sept. 4th, at Welbeck-street, W., to Captain C. Max Page, R.A.M.C. (S.R.), British Expeditionary Force, and Mrs. Page, a daughter.

MARRIAGES.

BATTY SHAW—WATSON.—On Sept. 1st, at Christ Church, Harrow-on-the-Hill, Harold Batty Shaw, F.R.C.P., R.A.M.C. (T.), to Muriel Agnes, younger daughter of the late Rev. Patrick Watson and Mrs. Patrick Watson, of Leafland, Harrow-on-the-Hill.

FERGUSON—MUIR.—On Sept. 2nd, at Stoke Newington Presbyterian Church, Charles Henry Ferguson, M.B., Ch.B., to Ada Mary, second daughter of Mr. and Mrs. Gordon Muir, of Kyverdale-road, Stamford Hill, London.

HENNESSY—HETHERINGTON.—On August 16th, at Colombo, Patrick Howard Hennessy, M.B., C.M. Madras, M.R.C.S., L.R.C.P. Lond., F.M.S., Medical Service, to Gladys Antoinette, daughter of the late Wilson Ashurst and Ethel Longland Hetherington.

MACFIE—HALLIWELL.—On Sept. 6th, at St. Philip's Church, Southport, Thomas Hately Macfie, M.B., C.M. Edin., younger son of Alexander Macfie, Esq., of Whithorn, N.B., to Maud, younger daughter of the late Robert Halliwell, Esq., of Wigan.

WILSON-SMITH—STORY.—On Sept. 2nd, at the Parish Church, Bromley, Kent, Thomas Wilson-Smith, M.D., M.R.C.P., of The Circus, Bath, to Louisa, daughter of the late Rev. George J. Story and Mrs. Story, of Holligrave-road, Bromley.

DEATHS.

LOWE.—On Sept. 2nd, Alfred Lowe, for 41 years Librarian to the Medical School of St. George's Hospital, S.W., aged 75 years.

LYON.—On August 31st, Thomas Glover Lyon, M.D., of Clifton Lodge, Ashstead, Surrey, aged 60 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEALTH REPORT OF SIERRA LEONE.

IN the medical section of the annual report on the Colony and Protectorate of Sierra Leone for the year 1914, prepared by Mr. E. E. Evelyn, I.S.O., the number of European residents is stated at 1191, 285 being classed as officials, 603 as military, and 303 as non-officials. There were 3 deaths amongst the military, due respectively to inflammation of the liver, blackwater fever, and malaria, whilst amongst the non-official and non-military there were 5 deaths, 2 being caused by blackwater fever, and 1 each by malaria, peritonitis, and dysentery. The average number of resident officials was 204. Of these, 137 were placed upon the sick list for a total period of 1463 days, the average number of days upon the sick list for each patient being 10·67 and the daily average upon the sick list 4·00. Eleven officials were invalided, as against 13 in the preceding year, the causes of invaliding being: adenitis 1, ulcer of rectum 1, pulmonary tuberculosis 1, hemiplegia 1, neurasthenia 2, malarial fever 2, enteric fever 1, ischio-rectal abscess 1, and nervous breakdown 1. There was no death among officials during the year. The total number of residents at Hill Station during the year was 74. Although the general health of the residents continued to be satisfactory, no less than 10 officials suffered from malarial fever.

The population of the Colony (as distinguished from the Protectorate) was returned at the last decennial Census in 1911 as 75,572 (41,001 males and 34,571 females). The number of deaths recorded during 1914 was 1637, or 22 per 1000, and of births 1327, or 18 per 1000 of the population. The population of Freetown (the capital), according to the Census of 1911, was 34,090; the births registered in 1914 numbered 666 and the deaths 997. These figures show a birth-rate of 19 and a death-rate of 29 per 1000 respectively. The excess of deaths over births is partly due to the fact that large numbers of men come up to Freetown from the Protectorate as labourers, leaving their families behind. The chief causes of death in Freetown were, in the order here given, as follows: (1) diseases of the digestive system, (2) diseases of the respiratory system and diseases of the nervous system, (3) malarial fever, (4) premature births, (5) debility, (6) diseases of the circulatory system, and (7) tuberculosis.

The population of the Protectorate (which has an area of about 27,000 square miles) is estimated at 1,327,560, of whom 1,323,151 are natives other than those in military barracks, while the remainder, numbering 3426, are non-natives. The approximate numbers of the various tribes are shown in the following statement: Autochthonous and semi-autochthonous pagan groups: Mendis 442,524, Lokkos 38,580, Krims 21,197, Gallinas (or Veis) 6685, Sherbros 107,274, and Bulloms 27,701; Northern invading and Mohammedanising groups: Foulahs 11,500, Mandingoes 12,735, Konnohs 61,000, Korankos 29,930, Susus 36,544, Yalunkas 15,600, Timinis 347,229, and Limbahs 110,933; Gpakas, 5,530; Gbennas, 11,777; miscellaneous, 35,407—making a total of 1,323,151.

Up to Jan. 1st, 1914, registration of births and deaths was compulsory only in Freetown. Since that date it has been made compulsory also in the Colony—as opposed to the Protectorate where registration remains optional. Five new cases of sleeping sickness were discovered during the year—4 in Freetown and 1 at Moyamba. Late in the year Professor W. Yorke and Dr. B. Blacklock, from the Liverpool School of Tropical Medicine, commenced an investigation into this disease. It is unsafe with the present data to draw any conclusion whether it is on the increase in Sierra Leone.

Out of a total of 997 deaths for the year in Freetown 40 were returned as due to tuberculosis, the proportion obtained from these figures being about 1·17 per 1000 living, at all ages. Eleven cases of blackwater fever were reported, of which 4 were fatal. One case of yellow fever was recorded in a European at Boia; the patient recovered. There were 2460 cases of malaria treated, of which 1027 occurred in Freetown.

Vaccination was carried on as usual both in the Colony and Protectorate; 6032 persons were vaccinated, 4323 (72 per cent.) with known success. Both the Colony and the Protectorate were singularly free from small-pox, and no serious epidemics of any kind occurred during the year.

In 1914 the number of patients treated at the various hospitals and dispensaries amounted to 49,420 (of whom 2696 were in-patients), as compared with 31,536 in the preceding year. In the Colonial Hospital, Freetown, 1443 individuals were treated as in-patients and 9174 as out-patients, as compared with 1513 and 22,445 respectively in the preceding year. The decrease in the number of out-patients was due to the opening of a dispensary at Cline Town, at which there were during the year 10,505 attendances. The number of operations performed was 271, a decrease of 94, as compared with the previous year; 17 of the patients died. The decrease in the number of operations, like the decrease in the number of out-patients treated, was due to the establishment of the Cline Town dispensary. At the Female Incurable Hospital 16 deaths occurred during the year, and on Dec. 31st 26 patients remained. At the Male Incurable Hospital there were 70 patients at the beginning of the year; 97 were admitted, 64 discharged, and 53 died. At the Leper Asylum there were 4 patients at the opening of the year and 2 were subsequently admitted; 1 died and 4 absconded. To the European Nursing Home there were 75 admissions, 29 of the cases being malaria; 37 of the patients were officials, and 38 belonged to the mercantile and shipping communities.

At the Tower Hill Observatory, Freetown, the mean maximum shade temperature for the year was 88·3°F. and the mean minimum shade temperature 70·3°, whilst the total rainfall was 102·34 inches. The rainfall was the smallest for the last 33 years. The record, however, at Hill Station, which is about 800 feet above sea-level and about 620 feet higher than Tower Hill Observatory, showed a rainfall of 133·92 inches. No such marked disparity has been noted before between the records of the two places, which, as the crow flies, are only about 2½ miles apart. If there be no mistake in the figures, the much higher record of the more elevated station tends somewhat to relieve special anxiety as to the probable sufficiency of the mountain streams of the water-gathering grounds for water-supply to the city.

THE WORK OF THE BRITISH AND FOREIGN SAILORS' SOCIETY.

To the Editor of THE LANCET.

SIR,—The further outrage on humanity in the sinking of the non-combatant liner *Arabic* is yet another reminder of the dangers to which our brave seamen are subjected. Since the declaration of the blockade by Germany, the crews, and in many instances the passengers also (including men, women, and children), from no fewer than 42 ships have been received into the various Sailors' Homes and Institutes of the British and Foreign Sailors' Society. The rescued seamen have received food and shelter and medical attention at the hands of our missionaries, and in not a few cases an entire outfit of clothing has been provided. This work has been undertaken in our homes at Aberdeen, Barrow, Falmouth, Milford Haven (where the victims of the *Falaba* were received), Weymouth, Havre, Las Palmas, and Buenos Aires.

In addition to this practical ministry the society has distributed nearly 50,000 warm woollens to the men of the British Navy and Mercantile Marine, the minesweepers, lighthouse and lightship keepers, &c. At least two tons of bright readable literature have also been despatched. In view of the coming autumn and winter, may I venture to enlist the sympathy and practical support of your readers in this great work? In addition to funds, the society would be very grateful for gifts of clothing—suits of clothes as well as underwear—woollen garments, magazines, books, games, &c., to be sent to our Headquarters, The Sailors' Palace, Commercial-road, London, E.

I am, Sir, your obedient servant,

RADSTOCK,
President, British and Foreign Sailors' Society.

Sailors' Palace, Commercial-road, London, E., Sept. 1st, 1915.

SOCIETAS GENTIUM LATINA.

Dr. A. Rose, of New York, writes that a little more than a year ago a few professional and business men in New York, some of whom had left college more than 30 years before, began to meet informally at fortnightly intervals to test in practice and prove or disprove the statement so often made that Latin, since it is a dead language, cannot be usefully employed conversationally. Some of these men had almost completely forgotten all the Latin they ever knew, others could recall a few words with great effort, while some more recent graduates could read it fairly well, though none could speak it. Only one of this circle had any professional relations with the study of Latin. Despite every moral discouragement, however, the membership increased till a point was reached where it seemed wise to incorporate the society; this was done on Feb. 1st, 1915, in the State of New York under the name "Societas Gentium Latina," the particular object being to ascertain and introduce methods for increasing interest in Latin and its use as a living language. Dr. H. C. de V. Cornwell, of New York City, is the president of the society.

SUDDEN PLEASURE AND SUDDEN PAIN AS CURATIVE AGENCIES.

THE newspapers have given great prominence during the last fortnight to cases of soldiers who have recovered from the effects of strain or shock in the war. One case which has been much paragraphed is that of a soldier who had lost the power of speech, but who, while attending a cinematograph exhibition, suddenly recovered control of the organs of speech by the excitement of his risible faculties. The sudden pleasure was curative. Sudden fright, on the other hand, is said to have brought about the recovery of sight in a case where the sense had been apparently lost. Such was the case of the wounded Canadian soldier who was on board the Atlantic liner *Hesperian* when she was torpedoed by a submarine off Ireland—the "blind" soldier, being suddenly thrown into the water, found his sight returned to him. In each case the shock called forth a reserve energy of reaction which in one single concentrated effort overcame the functional and temporary disability; but it is clear from some of the reports which we have read of this case, and of others comparable to it, that the difference between functional and structural default has not been realised.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1915, which was completed with the issue of June 26th, were given in THE LANCET of July 3rd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1915 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, are as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs.50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 8th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 2	29·640	S.W.	...	90	59	49	51	53	Cloudy
,, 3	29·672	W.	0·04	106	71	48	49	53	Fine
,, 4	29·934	N.E.	...	117	69	47	49	54	Cloudy
,, 5	30·270	N.E.	...	112	67	47	48	52	Fine
,, 6	30·280	W.	...	109	67	47	51	53	Fine
,, 7	30·320	W.	...	116	72	52	53	56	Fine
,, 8	30·290	S.E.	...	114	74	55	66	59	Fine

The following magazines, journals, &c., have been received:—St. Bartholomew's Hospital Journal, Excelsior, Clinical Journal, Practitioner, Medical Journal of South Africa, British Dental Journal, British Journal of Dental Science, Journal of Physiology, Royal Prince Alfred Hospital Gazette, Medical Journal of Australia, Broad Arrow, Mining Journal, Optician, Revue d'Hygiène, Medical Review, Dublin Journal of Medical Science, Edinburgh Medical Journal, Revista Medica del Uruguay, American Journal of Roentgenology, Journal of the American Medical Association, New York Medical Journal, Boston Medical and Surgical Journal, Cleveland Medical Journal, Journal of Nervous and Mental Disease, Clinical Journal, Journal of the Iowa State Medical Society, American Journal of the Medical Sciences, South African Medical Record.

Communications, Letters &c., have been received from—

A.—Ardath Tobacco Co., Lond.; Atlas Advertising Association, Leeds; Professor Sir Harry Allen, Melbourne; Dr. Edwin L. Ash, Lond.; Miss Agnes Adams, Lichfield.

B.—Mr. F. E. Bennett, Margate; Dr. H. Boshouwers, Valparaiso; Mr. J. Brereton-Barry, Liscard; Messrs. Bennett Bros., Salisbury; Messrs. W. H. Bailey and Son, Lond.; Bristol Corporation, Medical Officer of Health to the; Messrs. F. P. Baker and Co., Lond.; Mr. J. Bellows, Gloucester; Dr. C. C. Boyle, Swansea; Captain C. H. Barber, I.M.S.; Mr. S. T. Barrett, Cambridge; Dr. R. M. Buchanan, Glasgow; Mr. J. Blake, Lond.; Dr. H. Charlton Bastian, Chesham Bois; Dr. A. G. Bateman, Lond.; Sir Lauder Brunton, Bart., Lond.; Lieutenant W. E. Bullock, R.A.M.C.; Dr. C. Vincent Boland, Lond.

C.—Messrs. J. and A. Churchill, Lond.; C. B. R.; County Asylum, Prestwich Superintendent of; Messrs. Cooper and Holt, Lond.; Mr. R. E. Crawford, Lond.; Mr. J. Chamberlain, Lond.; Dr. A. D. Serrell Cooke, Lond.; Church of England Temperance Society, Lond., Manager of; City of London Hospital for Diseases of the Chest, Secretary of; Dr. Harry Campbell, Lond.; Rev. W. F. Cobb, D.D., Eye.

D.—Dewsbury Education Committee, Secretary of; Messrs. Duncan, Flockhart, and Co., Edinburgh; D. M.; Messrs. Down Bros., Lond.

E.—Lieutenant H. H. Elliott, R.A.M.C., Alexandria; Lieutenant T. P. Edwards, R.A.M.C., France; E. C.

F.—Mr. G. Finch, Lond.; Messrs. Fletcher, Fletcher, and Co., Lond.; Captain Arthur Foerster, R.A.M.C.; Mr. Alexander Fleming, Lond.; Dr. Arthur W. Fuller, Lond.

G.—Mrs. Glen, Bangour; Dr. P. G. Garrett, Earl Shilton; Mr. H. J. Gauvain, Alton; Mr. S. Gulbransen, Christiania; Gloucestershire County Council, Gloucester, Clerk to the; Mr. J. A. Campbell Greene, Preston; Dr. A. G. Gibson, Oxford; Mr. C. T. Geddes, Selborne; Dr. O. C. Gruner, Leeds; Mr. William Glenister, Aylesbury; Guy's Hospital Medical School, Lond., Dean of; Sir James Goodhart, Bart., Lond.

H.—Lieutenant D. P. Harvey, R.A.M.C., Lond.; Mrs. Hunter, Winnipeg; Professor W. D. Halliburton, Lond.; Messrs. J. H. Heathman and Co., Lond.; Dr. Charles W. Hayward Liverpool; Mr. N. Bishop Harman, Lond.; Captain T. G. M. Hine, R.A.M.C.; Dr. John Haddon, Denholm; Mr. Arthur Hanbury, Lond.

J.—Mr. G. A. V. Jones, Abergele; Rev. M. C. P. Jones, Shrewsbury; Mr. Llewelyn Jenkins, Swansea; Mr. B. James, Lond.

K.—King Edward VII. Hospital, Cardiff, Secretary of; Dr. H. Cameron Kidd, Bromsgrove.

L.—Dr. E. Muirhead Little, Lond.; Local Government Board, Lond.; Messrs. H. K. Lewis and Co., Lond.; L. C. M.; Leeds Public Dispensary, Secretary of; Messrs. Lee and Nightingale, Liverpool; Liverpool Stanley Hospital, Hon. Secretary of; London Throat Hospital, Secretary of; Messrs. Lever Bros., Port Sunlight; Mr. W. W. Linington, Dover; *The Lancet-Clinic*, Cincinnati; Dr. R. F. Licorish, Barbados; Sir W. Arbuthnot Lane, Bart., Lond.; Local Government Board for Ireland, Dublin, Secretary of.

M.—Mr. R. M. Mallach, Kirkby Stephen; Maruzen Co., Tokyo; Manchester Clerical, &c., Association, Secretary of; Mr. R. More, Glasgow; *Midland Counties Herald*, Birmingham, Manager of; Dr. P. A. McCarthy, Swords; Dr. D. McCarrol, Southampton; Dr. Malden, Malvern Link; Maltine Manufacturing Co., Lond.; Lieutenant A. Mathieson, R.A.M.C., Winchester; Messrs. W. K. Morton and Sons, Horncastle; Mr. A. McKerns, Lond.; Dr. E. D. Macnamara, Lond.; Sir Henry Morris, Bart., Lond.

N.—Professor M. I. Nougues, Madrid: North Riding Infirmary, Middlesbrough, Secretary Superintendent of; *The Nursing Times*, Lond., Editor of; Mr. T. Nicolson, Lond.; Dr. David Newman, Glasgow.

O.—Dr. C. M. O'Brien, Dublin; Sir William Osler, Bart., Oxford; Rear-Admiral K. Oguri, I.J.N., Lond.

P.—Mr. W. S. Payne, Lond.; Mr. R. F. Priestley, Rio Tinto; Dr. E. P. Poulton, Woldingham; Dr. Richard Purdon, Belfast; Messrs. E. T. Pearson and Co., Mitcham; Lieutenant W. T. C. Pearce, R.A.M.C., France.

R.—Reeth Rural District Council, Clerk to the; Messrs. Richardson and Co., Lond.; Mr. P. Rowe, Hemel Hempstead; Lieutenant D. O. Riddel, R.A.M.C., France; Registered Nurses' Society, Lond., Secretary of; Reuter's Telegram Co., Lond.; Mr. F. Norman Roth, Lond.; Dr. Clive Rivière, Lond.; Mr. L. Robertson, Bombay; Dr. Samuel Rideal, Lond.; Dr. J. D. Rolleston, Lond.; Dr. Rogerson, Glasgow; Dr. Rogerson, Gordon.

S.—Messrs. Stimson and Sons, Lond.; Mr. A. Saxlehner, Lond.; Messrs. W. H. Smith and Son, Folkestone; Swansea Education Committee, Clerk to the; Messrs. Squire and Sons, Lond.; St George's Retreat, Burgess Hill; Messrs. Snowdon, Sons, and Co., Lond.; *Shrewsbury Chronicle*, Manager of; Mr. W. G. Spencer, Hertford; Messrs. Spottiswoode and Co., Lond.; Mr. J. C. Segrue, Melide; Professor Arthur Schuster, Capel Curig; Dr. Ettie Sayer, Paris; Mr. J. D. Staple, Lyme Regis; Sir G. H. Savage, Lond.; Mr. Edward W. H. Shenton, Lond.; Dr. R. H. Steen, Dartford; Dr. J. P. Steele, Tivoli; Dr. A. Sanz de Santa-Maria, Limoges.

T.—Mr. A. H. Turner, Golborne; Messrs. Thacker and Co., Lond.; Messrs. C. Tuckey and Co., Lond.; Major G. Grey Turner, R.A.M.C.(T.), Newcastle-on-Tyne; Dr. Henry P. Taylor, Mid Yell.

V.—Mr. Dennis Vinrace, Lond.; *The Vaccination Inquirer*, Lond.

W.—Dr. H. W. Wiltshire, Lond.; Mr. R. L. Wason, Seaton; Welsbach Light Co., Lond.; W. H. P. S.; Lieutenant A. White, R.A.M.C.(T.), St. Albans; Westmorland Sanatorium, Meathop, Medical Superintendent of; Worcester County and City Asylum, Powick, Medical Officer of; Westminster General Dispensary, Lond., Secretary of; Major A. E. Webb-Johnson, R.A.M.C., France; Mr. David Eric Wilkinson, Wanstead; Major F. W. E. Wilson, C.A.M.C., Shorncliffe; Dr. F. Parkes Weber, Lond.; Mr. Arthur C. Wilson, Formby; Mr. Oliver Williams, Lond.; Wounded Allies Relief Committee, Lond.

Y.—York County Hospital, Secretary of.

Z.—Messrs. Chas. Zimmermann and Co., Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Army and Navy Male Nurses' Co-operation, Lond., Secretary of; Mr. A. Abrahams, Aldershot; Addenbrooke's Hospital, Cambridge, Secretary of; A. T.; Mr. R. G. Astwood, Brighton; Apothecaries Hall of Ireland, Dublin, Registrar of; Messrs. Allen and Hanburys, Lond.; Dr. A.

B.—Lieutenant A. Barr, A.V.C., France; Mr. E. Bryne, Slane; Dr. L. Blanc, Aix-les-Bains; Bolton Infirmary, Secretary of; Belfast County Council, Chamberlain to the; Bedfordshire County Council, Bedford, Clerk to the; Mr. W. R. Bristowe, Lond.; Birmingham and Midland Hospital for Skin, &c., Diseases, Secretary of; Dr. Hugh Boyd, Bendigo, Australia; Mr. I. C. C. Barclay, Cowdenheath; Miss Kate Bealley, South Croydon; Dr. D. J. Barrett, Glasgow; Mrs. Brown, Brixham.

C.—Dr. S. G. Champion, Bournemouth; Mrs. Calvert, Buxton; Mr. W. C. Cox, Lond.; Church Army, Lond.; Messrs. Cozens-Hardy and Jewson, Norwich; Messrs. Caudle and Co., Westcliff-on-Sea; C. W.

D.—Dr. W. Donaldson, Flotta; Miss Dyke, Lond.

E.—Mr. E. Evans, Felinfach.

F.—Mr. J. A. Frost, Newport, Monmouthshire; Messrs. Fredericks, Hayes.

G.—Dr. H. M. Galt, Brighton; Dr. S. Gill, Formby.

H.—Dr. J. J. Hanratty, Bury; Mr. W. J. Hill, Worcester; Mr. A. Haslewood, Llantwit Major; H. A. S.; H. S.; Dr. Hatfield, Lond.; H. C. S. W.

J.—J. B. K.; J. F. H.

K.—Mr. W. V. Kane, Jubbulpore; Messrs. G. Kelly and Co., Lond.; Captain H. A. Kisch, R.A.M.C., Lond.

L.—Mr. T. S. Logan, Stone; Dr. J. C. Lesage, Lond.; Mrs. Lloyd, Brockmoor; Lloyd's Bank, Lond.; Locum, Cromwell-road.

M.—Colonel Magill, Lond.; Lieutenant R. R. Mackay, R.A.M.C., France; Dr. J. MacLaughlin, Ballywillan; Miss L. C. Marx, Andover.

N.—New Mental Nurses' Co-operation, Lond.

P.—Mr. A. J. Pelton, Tunbridge Wells; Perrier, Ltd., Lond.

R.—Randall's Advertising Agency, Liverpool; R. R.; Messrs. Renton and Renton, Harrogate.

S.—Messrs. W. H. Smith and Son, Lond.; Swansea General and Eye Hospital, Secretary of; Rev. T. G. Sampson, Arley; Salford Corporation, Accountant to the; Miss Stringer, Lond.; Mr. Arthur Schomberg, Seend.

T.—Mr. A. T. Tyer, Lond.; T. B.

V.—Messrs. Van Houten, Lond.; Messrs. Gerth Van Wyk and Co., Lond.

W.—Mr. Percy R. Wilde, Bath; Wigan Infirmary, Secretary of; Dr. H. K. Waller, Lond.; Colonel F. Wellesley, Winchfield; Dr. F. J. Jennings Wood, Farnham Royal; Wye House, Buxton, Medical Superintendent of; Dr. J. K. Welsh, Wishaw.

Z.—Miss M. L. Zundel, Guernsey.

EVERY FRIDAY. **THE LANCET.** PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES and ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ... ... / Official and General Announcements	Five Lines and under £0 4 0
Trade and Miscellaneous Advertisements and Situations Vacant ...	Every additional Line 0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.
Special terms for Position Pages.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to advertisements; copies only should be forwarded.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance. Cheques and Post Office Orders (crossed "London County & Westminster Bank, Covent Garden Branch") should be made payable to the Manager Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to advertisements or subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agents for the Advertisement Department in France—SOCIÉTÉ EUROPÉENNE DE PUBLICITÉ, 10, Rue de la Victoire, Paris.